The International Seismological Summary.

1936 October, November, December.

FORMERLY THE BULLETIN OF THE BRITISH ASSOCIATION SEISMOLOGY COMMITTEE.

The present number concludes the volume for 1936 and contains determinations for 137 epicentres, classified as :—

$N._1$—13	$R._1$—11	X.—54
$N._2$—5	$R._2$—20	
$N._3$—18	$R._3$—16	

Cases of deep focus occur on these dates :—

Date.			Epicentre.		Depth
	d.	h.	°	°	
Oct.	19	19	36·5N.	135·8E.	0·060
	25	15	34·5N.	140·0E.	0·0125
	26	9	34·5N.	136·3E.	0·060
Nov.	12	20	45·5N.	148·5E.	0·015
	15	21	20·5S.	177·5W.	0·070
	22	14	30·2S.	179·0W.	0·090
	26	8	16·5S.	179·0W.	0·060
Dec.	1	6	30·5N.	129·0E.	0·040
	10	13	34·5N.	140·0E.	0·0125
	26	22	30·7S.	177·6W.	0·025

KEW OBSERVATORY,
RICHMOND,
SURREY.

23rd October, 1947.

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1936 OCTOBER, NOVEMBER, DECEMBER.

Oct. 1d. Readings at 0h. (Grozny, Tiflis, and near Sumoto), 2h. (Tashkent), 4h. (near Mizusawa), 5h. (Andijan), 6h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, and near Tiflis), 8h. (Santiago), 11h. (near Samarkand), 12h. (Santiago), 13h. (Tashkent), 15h. (Mount Wilson, Pasadena, Riverside, Tinemaha, near Santiago, and San Javier), 16h. (near Andijan), 19h. (Medan), 20h. (New Plymouth), 22h. (Tacubaya and Tucson), 23h. (Tacubaya).

Oct. 2d. Readings at 0h. (near Medan (2)), 1h. (Hong Kong), 2h. (Hong Kong, Andijan, Frunse, Samarkand, and near Manila), 4h. (Santiago), 5h. (New Plymouth), 6h. (Berkeley, Branner, Lick, Ukiah, San Francisco, Butte, Bozeman, Sitka, Tucson, and near Florissant), 8h. (Berkeley, Branner, and Lick), 9h. (near Malabar (2) and near Sotchi), 10h. (San Juan and near Medan), 12h. (Adelaide and Nanking), 13h. (Melbourne, Riverview, Christchurch, Baku, Sverdlovsk, and Ksara), 14h. (Andijan and Frunse), 19h. (Samarkand and Tiflis), 23h. (Sitka and Tucson).

Oct. 3d. 15h. 48m. 39s. Epicentre 47°·7N. 14°·7E. N.2.

$A = +\cdot6547$, $B = +\cdot1718$, $C = +\cdot7361$; $\delta = -1$;
$D = +\cdot254$, $E = -\cdot967$; $G = +\cdot712$, $H = +\cdot187$, $K = -\cdot677$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Graz		0·6	122	i −0 3	−12	—	—	—	—
Vienna		1·4	53	e 0 22	+ 2	0 38	+ 2	—	1·2
Zagreb		1·8	151	e 0 21a	− 5	i 0 44	− 2	—	0·8
Prague		2·7	356	e 0 39	0	1 21	S_g	—	1·5
Padova		3·0	224	e 0 39	− 4	1 11	− 6	—	—
Cheb		3·1	330	e 0 48	P*	e 1 21	+ 1	—	1·7
Ravensburg		3·5	279	e 1 1	P_g	e 1 36	+ 6	e 2·2	—
Chur		3·6	264	e 0 49	− 2	e 1 43	S*	—	—
Ebingen		3·9	282	e 1 8	P_g	i 2 1	S_g	e 2·3	—
Stuttgart		3·9	291	0 56a	0	i 1 41	+ 1	e 2·3	2·8
Jena		4·1	331	i 0 59	+ 1	i 1 46	+ 1	i 1·9	2·2
Zurich		4·1	272	e 0 57	− 1	e 2 3	S*	—	—
Florence		4·3	215	1 2	+ 1	1 41	− 9	—	—
Karlsruhe		4·5	298	1 10	P*	1 56	+ 1	—	—
Belgrade		4·7	121	i 0 58	− 9	i 2 18	S*	—	3·8
Basle		4·8	275	e 1 6	− 2	e 2 33	S_g	—	—
Strasbourg		4·8	287	e 1 9	+ 1	i 2 28	S_g	—	—
Göttingen		5·2	325	i 1 14	0	i 2 24	S*	—	2·9
Neuchatel		5·2	268	i 1 11	− 3	i 2 36	S*	—	—
Capodimonte	N.	6·5	183	e 2 8	P_g	e 3 38	S_g	—	3·8
Lemberg		6·6	65	e 1 54	P*	—	—	—	6·1
Hamburg		6·8	338	e 2 55	P*	e 3 26	S*	e 4·0	4·2
Uccle		7·6	301	e 1 53	+ 5	i 3 37	S*	—	—
De Bilt		7·7	311	—	—	e 3 33	+17	e 3·9	5·3
Sofia		7·7	125	e 2 29	P_g	e 3 46	S*	—	—
Paris		8·3	285	2 40	P_g	—	—	4·2	4·2
Copenhagen		8·4	352	—	—	e 3 40	+ 6	4·6	—
Bucharest		8·5	108	e 2 9	+ 9	4 2	S*	4·9	—
Jersey		11·3	285	—	—	e 5 59	S_g	—	7·2
Tortosa	N.	12·1	243	e 5 46	S	(e 5 46)	S*	—	—
Upsala		12·6	6	—	—	e 6 26	S*	e 7·5	7·9
Bidston		12·8	304	—	—	e 5 11?	−11	—	—
Yalta		13·7	95	e 3 9	− 2	e 8 33	?	—	—
Edinburgh		13·9	315	—	—	e 6 11?	+22	—	8·2
Pulkovo		15·4	31	e 3 33	− 1	e 6 33	+ 9	8·2	8·8
Moscow		16·4	51	e 4 30	+34	—	—	8·6	10·7
Ksara		20·9	124	e 4 38	− 1	e 8 30	+ 6	—	—
Tiflis		22·0	94	e 4 58	+ 7	e 8 57	+11	12·7	14·0
Baku		26·1	92	—	—	e 10 26	+26	14·7	—
Tashkent		38·7	78	—	—	e 15 11	SS	e 20·6	26·3

For Notes see next page.

NOTES TO OCT. 3d. 15h. 48m. 39s.

Additional readings :—
Vienna $S_g = +45s.$
Zagreb i = +23s., iZ = +27s., i = +33s. and +42s., iZ = +45s.
Prague $eP_g = +46s.$
Cheb e? = +1m.25s. and +1m.36s.
Ravensburg eN = +1m.18s., $iS_gN = +1m.45s.$, iN = +2m.1s.
Chur i = +52s., $eP_g = +57s.$
Ebingen $iS_g = +2m.6s.$
Stuttgart $iP_g = +1m.8s.$, iEZ = +1m.11s.? iS*N = +1m.54s., $iS_g = +2m.1s.$ and +2m.6s., iN = +2m.9s.
Jena iN = +1m.25s. and 1m.33s.
Zurich i = +1m.0s., $iP_g = +1m.9s.$
Florence $P_g = +1m.19s.$
Belgrade i = +1m.6., $iP_gZ = +1m.22s.$, iZ = +1m.42s. and +2m.6s.
Strasbourg $P_g = +1m.24s.$, ePP = +1m.28s., ePPP = +1m.35s., ePS = +2m.4s., SS = +2m.32s.
Göttingen iE = +1m.20s., iN = +2m.27s., i = +2m.41s.
Neuchatel $iP_g = +1m.29s.$
Basle i = +1m.8s., $eP_g = +1m.17s.$
Hamburg iZ = +3m.42s.
Uccle iE = +4m.5s.
Sofia eNE = +4m.17s., iNW = +4m.40s. and +5m.4s.
Copenhagen eN = +3m.57s.
Bucharest eN = +2m.19s., eEN = +2m.53s., eEN = +3m.15s.
Jersey e = +6m.15s., SS? = +6m.32s.
Tashkent e = +17m.29s. and +18m.33s.
Long waves were also recorded at Durham, Kew, Simferopol, Scoresby Sund, and San Fernando.

Oct. 3d. 21h. 50m. 14s. Epicentre 1°·2N. 122°·8E. N.1.

A = −·5416, B = +·8404, C = +·0209 ; δ = +4 ;
D = +·841, E = +·542 ; G = −·011, H = +·017, K = −1·000.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		13·5	352	i 3 8k	− 1	i 5 56	+17	i 7·3	—
Malabar		17·3	241	4 9	+11	7 37	+28	—	—
Batavia		17·6	244	i 4 2a	0	i 7 25	+10	—	—
Soengi Langka		18·7	248	4 10	− 5	e 7 41	+ 1	—	—
Kosyun		20·9	354	4 39k	0	8 33	+ 9	—	—
Taito		21·6	355	4 49	+ 3	—	—	—	—
Tainan		21·9	354	4 56	+ 6	8 54	+10	—	—
Arisan		22·4	354	4 51	− 4	8 53	0	—	—
Hong Kong		22·7	339	4 56a	− 2	9 3	+ 4	11·2	15·4
Karenko		22·8	357	5 2	+ 3	—	—	—	—
Taikyu		23·0	354	5 1	0	9 8	+ 3	—	—
Isigakizima		23·2	4	4 48	−15	9 0	− 8	—	—
Giran		23·6	358	5 2	− 4	—	—	—	—
Taihoku		23·9	358	e 5 10	+ 1	e 9 23	+ 2	—	—
Medan		24·2	276	i 5 19a	+ 7	i 9 34	+ 7	—	—
Phu-Lien		25·2	322	5 21	− 1	i 9 46	+ 2	12·8	—
Naha		25·4	9	5 23	− 1	—	—	—	—
Nake		27·9	13	5 55	+ 9	—	—	—	—
Zi-ka-wei	z.	30·0	358	i 6 6a	+ 1	10 46	−18	15·7	21·4
Nanking		31·1	352	i 6 13	− 2	i 11 18	− 3	15·5	20·0
Miyazaki		31·8	13	6 13	− 8	11 9	−23	—	—
Nagasaki		32·2	11	6 9	−15	—	—	—	—
Hukuoka B		33·2	12	e 7 38	PP	e 11 34	−20	—	—
Husan		33·4	8	e 4 32	?	e 8 34	?	12·1	—
Perth		33·8	190	i 6 36	− 3	11 53	−10	16·8	25·8
Koti		33·9	16	6 47	+ 8	—	—	—	—
Siomisaki		34·5	20	6 44	− 1	—	—	—	—
Hamada		34·8	14	7 4	+17	—	—	—	—
Sumoto		35·0	18	e 6 49	0	12 13	− 8	e 17·9	—
Wakayama		35·0	18	6 47	− 2	12 8	−13	—	—
Kobe	E.	35·4	18	e 7 4	+11	12 24	− 3	16·6	19·9
	N.	35·4	18	e 6 58	+ 5	12 20	− 7	15·2	22·3
Osaka		35·5	18	6 39	−14	—	—	—	—
Taikyu		35·6	8	e 6 47	− 7	12 15	−15	—	—
Toyooka		36·1	17	—	—	(12 37)	− 1	12·6	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hamamatu		36·3	21	6 50	−10	12 33	− 8	—	—
Hikone		36·3	20	6 50	−10	—	—	—	—
Nagoya		36·4	20	e 7 5	+ 4	—	—	e 17·3	—
Zinsen	N.	36·5	4	e 6 48	−14	e 12 9	−35	—	—
Gihu		36·6	20	7 3	0	12 22	−23	—	—
Keizyo		36·6	5	e 7 6	+ 3	e 12 41	− 4	—	—
Misima		37·1	22	7 1	− 6	—	—	—	—
Tokyo		37·9	23	7 17	+ 3	—	—	—	—
Oiwake		38·0	21	7 21	+ 6	13 4	− 2	—	—
Nagano		38·2	20	7 20	+ 3	13 2	− 7	—	—
Maebasi		38·3	21	7 35	+17	—	—	—	—
Adelaide		39·0	159	e 7 19	− 5	i 13 21	0	e 20·7	28·5
Chiufeng		39·3	351	7 24k	− 2	i 13 23	− 3	i 16·8	25·6
Hukusima		40·0	22	7 35	+ 3	13 32	− 4	—	—
Colombo		43·2	278	7 54	− 4	14 18	− 6	22·8	26·2
Riverview		44·0	145	e 8 5	0	e 14 39	+ 3	20·2	27·5
Sydney		44·0	145	e 8 20	+15	i 14 22	−14	23·1	32·0
Melbourne		44·1	154	8 5a	− 1	14 46	+ 9	24·6	30·3
Kodaikanal	E.	45·9	283	i 8 18	− 2	i 15 2	− 1	22·1	32·0
Hyderabad		46·5	293	8 27	+ 2	15 11	− 1	20·1	29·2
Agra	E	50·1	305	8 47	− 5	i 15 51	−11	—	—
Bombay		52·0	293	i 9 11	+ 5	i 16 35	+ 7	—	37·8
Frunse		59·8	320	e 9 56	− 7	18 6	− 7	35·3	—
Andijan		60·3	317	e 10 19	+12	e 18 35	+15	33·2	—
Tashkent		62·6	317	10 16	− 6	i 18 47	− 3	29·9	45·6
Christchurch		63·0	141	i 10 25a	0	—	—	—	—
Wellington		63·3	138	10 24	− 3	19 3	+ 4	33·3	38·8
Samarkand		63·5	314	e 10 33	+ 4	19 1	0	—	—
Sverdlovsk		74·2	330	i 11 42	+ 6	i 21 10	− 1	34·8	49·1
Baku		76·3	311	e 11 46	− 2	i 21 30	− 5	37·8	51·8
Tananarive		76·5	250	e 11 48	− 1	—	—	e 36·8	44·5
Honolulu		79·7	68	16 4	PP	e 22 5	− 7	e 38·9	—
Grozny		79·8	313	12 7	0	22 7	− 7	41·8	—
Erevan		80·3	310	e 12 12	+ 3	e 22 10	− 9	—	—
Tiflis		80·3	312	12 6	− 3	i 22 10	− 9	39·8	55·1
Moscow		86·3	325	12 37	− 3	23 0	[− 8]	43·2	55·2
Ksara		86·8	303	i 12 39a	− 3	e 23 19	− 6	41·1	—
Theodosia		87·3	315	e 12 52	+ 7	23 3	[−12]	39·8	—
Simferopol		88·2	315	e 12 53	+ 4	23 13	[− 8]	56·3	—
Yalta		88·2	314	e 16 20	PP	e 23 9	[−12]	e 50·0	—
Sebastopol		88·6	315	e 16 23	PP	e 23 14	[−10]	—	—
College		88·7	25	e 20 49	PPPP	—	—	—	—
Pulkovo		90·2	330	e 12 52	− 6	i 23 38	[+ 4]	50·8	54·7
Bucharest		93·9	314	e 16 12	PP	—	—	22·8	56·8
Sofia		96·1	312	e 17 16	PP	e 23 46	[−20]	—	58·8
Upsala		96·5	330	—	—	e 23 37	[−31]	e 46·8	60·3
Belgrade	N.E.	97·9	314	e 17 49	PP	e 24 5	[−11]	e 50·2	—
Copenhagen		100·3	326	13 48	+ 3	24 19	[− 8]	48·8	—
Prague		100·7	321	e 19 28	PPP	e 24 22	[− 7]	e 46·8	51·3
Graz		100·8	317	e 7 59	?	e 17 36	PP	e 51·8	65·8
Bergen		102·1	333	—	—	e 23 46?	[−50]	e 47·8	—
Hamburg		102·3	325	e 13 52	− 2	i 24 28	[− 9]	e 52·8	62·8
Cape Town		102·5	235	e 17 49	PP	i 24 46	[+ 8]	e 46·6	54·0
Göttingen		103·0	323	i 18 18a	PP	i 25 39	−14	e 54·8	67·8
Stuttgart		104·4	320	e 13 58	− 6	e 24 35	[−12]	e 51·8	71·5
Scoresby Sund		104·7	348	20 28	PPP	24 44	[− 4]	51·8	—
Strasbourg		105·3	320	e 13 46?	−22	e 26 4	{+31}	e 44·8	67·3
De Bilt		105·6	325	e 18 38	PP	e 24 49	[− 4]	e 54·8	72·6
Uccle		106·5	324	i 18 45	PP	i 24 49	[− 8]	e 49·8	—
Ukiah		107·6	48	—	—	e 24 52	[−10]	—	—
Edinburgh		108·2	331	—	—	i 24 53	[−12]	52·8	65·0
Paris		108·5	322	e 18 46?	PP	e 27 46?	?	56·8	—
Berkeley		108·7	49	—	—	e 24 53	[−14]	—	—
Kew		108·9	326	i 19 6a	PP	e 24 59	[− 9]	55·8	70·6
Stonyhurst		108·9	329	—	—	e 25 1	[− 7]	58·5	64·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Oxford		109·3	326	i 18 59	PP	i 28 16	SS	e 54·3	67·0
Bidston		109·4	329	—	—	e 25 0	[−11]	55·8	70·4
Jersey		111·0	324	—	—	e 25 2	[−16]	66·4	73·5
Tinemaha	z.	111·9	49	e 18 36	[+12]	—	—	—	—
Butte		112·3	37	—	—	e 24 52	[−31]	—	—
Algiers		112·6	310	—	—	e 34 46?	SS	73·8	77·8
Mount Wilson	z.	113·0	51	e 18 32	[+ 5]	—	—	—	—
Pasadena		113·0	51	i 18 33	[+ 6]	i 28 55	PS	i 34·7	—
Bozeman		113·4	37	e 28 52	PS	—	—	—	—
Ivigtut		117·2	353	21 46?	PPP	25 28	[−13]	57·8	—
Granada		117·4	313	i 20 0	PP	—	—	65·3	—
Tucson		119·4	51	e 18 47	[+ 3]	e 27 8	{− 4}	e 48·3	—
San Fernando		119·6	313	—	—	e 33 11	?	67·8	—
Chicago		129·0	29	e 21 15	PP	e 25 56	[−20]	e 53·0	—
Florissant		129·7	33	e 21 16	PP	e 31 3	?	e 45·5	63·9
St. Louis	E.	129·9	33	e 17 45	?	—	—	—	—
Ottawa		130·6	16	e 22 29	PKS	e 38 10	SS	e 65·8	—
Toronto		130·9	20	i 22 33	PKS	i 28 17	{−10}	—	—
Oak Ridge		134·4	14	e 19 9	[− 5]	—	—	e 69·8	—
Weston		134·6	40	e 21 53	PP	—	—	—	—
Philadelphia		135·7	90	e 22 1	PP	e 28 26	{−31}	e 63·3	—
Dakar		137·6	293	e 19 1	[−18]	e 27 48	?	e 84·0	90·3
Columbia		138·3	30	e 22 4	PP	—	—	—	—
Rio de Janeiro		154·4	211	e 19 46	[− 1]	—	—	—	—
San Juan		158·6	213	e 19 52	[0]	e 30 32	{−39}	e 69·9	—
La Paz		161·3	146	i 19 57k	[+ 2]	45 4	SS	82·0	91·1

Additional readings :—
Batavia iSE = +7m.45s.
Soengei Langka S = +7m.57s.
Hong Kong PP = +5m.17s., PPP = +6m.6s., ? = +8m.14s., SS = +9m.51s.
Zi-ka-wei iZ = +6m.21s., PPZ = +6m.42s., PPPZ = +6m.56s., iZ = +7m.10s., +9m.20s., and +11m.44s., SSZ = +12m.2s., SSSZ = +12m.20s.
Nanking ePPN = +7m.16s., SS = +13m.6s.
Perth PP = +7m.46s., PPP = +8m.1s., P_cS = +12m.46s., SS = +14m.1s., SSS = +14m.36s. and +14m.56s.
Sumoto SE = +12m.17s.
Kobe eSZ = +12m.29s.
Zinsen ePPN = +8m.9s.
Adelaide iPP? = +8m.57s., i = +13m.48s., +17m.6s., and +19m.28s.
Chiufeng PPEN = +9m.3s., iSSEN = +16m.9s.
Riverview eE = +18m.1s., iN = +18m.10s. = S_cS +4s.
Melbourne i = +9m.46s., +15m.8s., +15m.51s., +17m.53s., and +20m.44s.
Kodaikanal iSSE = +18m.9s.
Agra pP?E = +8m.57s., PPE = +10m.53s., sS?E = +16m.25s., SSE = +19m.39s.
Bombay P_cPEN = +10m.26s., PSEN = +16m.48s., SSSEN = +21m.2s.
Tananarive PS = +22m.15s., SS = +26m.37s.
Honolulu S = +22m.12s., PS = +22m.52s., e = +24m.48s.
Tiflis ePPE = +15m.18s., ePSE = +22m.50s., eSSE = +27m.34s., eSSSE = +31m.22s.
Moscow ePP = +16m.15s., SSS = +32m.46s.
Ksara PP = +16m.4s., eSKS = +22m.54s., ePS = +24m.13s.
Theodosia e = +16m.18s.
Simferopol e = +16m.25s.
College e = +21m.48s.
Pulkovo PP = +16m.39s., SKS = +23m.18s., PS = +24m.52s., SS = +29m.34s., SSS = +33m.22s., L_q = +45·8m.
Bucharest eE = +17m.2s.
Copenhagen PP = +17m.56s., SKKS = +25m.15s., PS = +26m.39s., eN = +27m.52s., SS = +32m.22s.
Prague eN = +25m.22s., eE = +27m.46s.?, e = +32m.28s., and +36m.22s.
Hamburg eZ = +18m.11s. = PP +11s.
Cape Town iPPSE = +27m.26s., iSSE = +32m.0s.
Stuttgart ePP = +18m.27s., e = +19m.52s., ePS = +27m.27s., e = +30m.46s., eSS = +33m.21s., eSSS = +36m.52s.
Scoresby Sund PS = +27m.27s., iPPS = +28m.27s., eN = +29m.52s.
Strasbourg i = +18m.39s., e = +28m.46s.?, e = +33m.33s.
De Bilt eEN = +26m.5s. and +33m.35s.
Uccle i = +26m.11s. and +28m.47s., i = +33m.49s., eE = +36m.46s.
Edinburgh i = +29m.18s. and +35m.8s.
Berkeley eE = +24m.57s., eN = +28m.5s., iEZ = +28m.9s.

Continued on next page.

Kew ePSE = +28m.15s., iPPSEZ = +29m.15s., eSSEN = +34m.16s., eEN = +43m.17s. and +53m.57s.
Stonyhurst e = +28m.11s., +29m.6s., and +34m.6s. = SS +2s.
Bidston e = +28m.15s., i = +29m.17s., e = +34m.21s. and +53m.58s.
Jersey ePP? = +28m.32s., ePPP = +32m.12s., i = +34m.49s., and +59m.34s.
Tinemaha iEZ = +19m.22s. = PP +11s., eZ = +29m.32s.
Algiers e = +56m.46s.
Pasadena eZ = +26m.28s. = SKKS +0s.
Ivigtut SKKS = +26m.48s., PS = +29m.40s., PPS = +30m.52s., SS = +36m.10s., SSS = +39m.52s.
Tucson PS = +29m.53s., ePPS = +31m.12s., eSS = +36m.36s.
San Fernando eSS = +45m.43s.
Chicago eSKP = +22m.33s., eSKKS = +27m.50s., e = +28m.3s., eSSS = +43m.7s.
Florissant iZ = +21m.25s., eEN = +22m.27s., eN = +31m.57s., +38m.28s., and +40m.55s.
St. Louis eE = +17m.49s., +18m.29s., and +24m.12s.
Ottawa e = +34m.4s., eE = +47m.4s.
Oak Ridge eZ = +21m.43s. = PP −3s., iEZ = +22m.39s.
Philadelphia eSKS = +26m.10s., e = +32m.28s., eSS = +40m.9s., eSSS = +44m.46s.
Columbia eSKP = +22m.58s., e = +35m.46s.
San Juan ePP = +24m.16s., eSKS = +26m.51s., ePPS = +37m.19s., eSS = +44m.56s.
La Paz iPP = +24m.26s., SSSE = +54m.26s.
Long waves were also recorded at Cheb, Florence, Durham, Vienna, Zagreb, Almeria, Jena, and Tortosa.

Oct. 3d. Readings also at 3h. (Nanking and near Santiago), 4h. (near Santiago), 7h. and 8h. (near Sumoto), 10h. (Andijan, Frunse, Tashkent, and near Zagreb), 14h. (Granada), 16h. (Andijan, Frunse, Samarkand, and near Ferndale), 18h. (near Berkeley, Branner, Lick, San Francisco, and near Tiflis), 19h. (Christchurch, Graz, near Branner, Fresno, and Lick), 20h. (near Nanking), 22h. (Medan).

Oct. 4d. 7h. Atlantic Ocean :—

Granada e = 32m.0s. and 49m.36s.
La Paz iPE = 32m.50s., iSE = 40m.8s., LE = 50m.0s., M = 53m.57s.
Rio de Janeiro eP = 33m.0s.
San Juan e = 33m.12s.
Huancayo eP = 33m.23s., ePP = 37m.23s., eS = 41m.6s., eL = 53m.30s.
Ksara iP = 33m.47s.k, PP = 36m.12s., eS = 42m.24s.
De Bilt iPZ = 33m.50s., eSS = 46m.53s., eL = 55m., M = 56m.22s.
Tiflis eP = 34m.48s., eS = 44m.44s., eL = 71m.
Baku eP = 35m.8s., S = 45m.10s., L = 61m.24s.
Moscow eP = 35m.12s.
Pulkovo e = 35m.40s., L = 65m.
Tashkent e = 35m.57s. and 36m.10s., iS = 47m.24s., e = 54m.23s., eL = 65m.6s., M = 80m.12s.
Sverdlovsk iP = 36m.22s., L = 65m.
Uccle e = 42m.23s., eL = 54m.
Bombay eE = 47m.0s., M = 73m.27s.
Long waves were also recorded at Stuttgart, Strasbourg, Paris, San Fernando, Copenhagen, and Tucson.

Oct. 4d. 9h. 31m. 34s. Epicentre 47°·4N. 14°·7E. (as on October 3d.). X.

A = +·6547, B = +·1718, C = +·7361 ; δ = −1.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Graz		0·6	122	i 0 1	− 8	—	—	0·1
Vienna		1·4	53	e 0 21	+ 1	e 0 45	+ 9	—
Zagreb		1·8	151	0 24	− 2	0 45	− 1	—
Prague		2·7	356	—	—	e 1 25	S_g	2·4
Chur		3·6	264	e 0 57	P*	e 1 46	S*	—
Stuttgart		3·9	291	—	—	e 2 3	S_g	—
Zurich		4·1	272	e 0 56	− 2	e 2 8	S_g	—
Jena	N.	4·1	331	—	—	e 2 2	S*	—
Basle		4·8	275	e 1 17	P*	—	—	—
Alicante		14·3	236	3 48	+29	—	—	—

Additional readings :—
Prague e = +1m.56s.
Zurich eP_g = +1m.10s.

Oct. 4d. 23h. 53m. 35s. Epicentre 30°·7S. 177°·6W. (as on 1932 April 3d.). R.2.

$A = -·8591$, $B = -·0360$, $C = -·5105$; $\delta = -4$;
$D = -·042$, $E = +·999$; $G = +·510$, $H = +·021$, $K = -·860$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni		9·2	214	3 15	+65	5 10	+76	—	6·4
Hastings		10·0	206	i 2 25?	+ 4	i 3 35	−38	—	—
New Plymouth		10·8	217	3 20	+48	4 32	− 1	—	—
Wellington		12·2	208	3 1	+10	5 7	− 1	—	5·2
Christchurch		15·0	208	e 3 34k	+ 6	e 5 45	−30	6·6	7·7
Apia		17·7	18	e 4 3	0	i 7 26	+ 9	—	—
Riverview		26·5	255	i 5 38	+ 4	i 10 47	+40	e 12·4	14·8
Sydney		26·5	255	i 5 35	+ 1	i 10 25	+18	13·2	15·9
Melbourne		31·5	245	6 22k	+ 4	11 27	− 1	14·9	17·2
Adelaide		36·7	253	e 8 58	PPP	i 12 21	−26	—	29·2
Honolulu		55·4	23	e 9 16	−16	e 17 5	−10	e 26·0	—
Perth		55·9	250	9 25?	−10	17 25	+ 4	27·8	31·4
Manila		74·4	298	11 25a	−12	21 58	+45	—	—
Batavia		74·4	272	i 11 33	− 4	i 21 5	− 8	e 29·4	—
Numadu		77·5	324	11 54	− 1	—	—	—	—
Kohu		78·1	324	11 57	− 1	—	—	—	—
Wakayama		78·1	322	11 54	− 4	21 46	− 9	—	—
Maebasi		78·4	325	11 53	− 6	—	—	—	—
Nagoya		78·5	324	e 11 58	− 2	—	—	—	—
Oiwake		78·6	325	12 0	0	—	—	—	—
Osaka		78·8	322	12 1	0	—	—	—	—
Miyazaki		79·1	317	12 0	− 3	21 50	−16	—	—
Nagano		79·1	325	12 4	+ 1	—	—	—	—
Kosyun		79·2	303	12 1	− 3	—	—	—	—
Kagosima		79·3	316	12 14	+10	—	—	—	—
Gihu		79·4	324	11 29	−36	—	—	—	—
Hong Kong		84·2	300	14 33	?	22 50	[− 3]	—	44·4
Zi-ka-wei	z.	84·8	312	12 30	− 2	—	—	—	43·8
Santa Barbara	z.	84·9	45	i 12 34	+ 1	—	—	—	—
La Jolla		85·4	47	i 12 37	+ 2	e 23 0	[− 2]	—	—
Branner		85·6	41	e 12 40	+ 4	—	—	—	—
Pasadena		85·7	45	e 12 34	− 3	e 22 58	[− 6]	e 38·4	—
Lick	N.	85·8	41	e 12 39	+ 2	—	—	—	—
Mount Wilson	z.	85·8	45	e 12 33	− 4	—	—	—	—
Berkeley		85·9	40	i 12 40	+ 2	e 23 15	− 2	—	—
Riverside		86·1	46	e 12 38	− 1	e 23 3	[− 4]	—	—
Ukiah		86·2	39	e 12 52	+13	e 22 51	[−17]	e 38·5	—
Medan		86·4	276	e 12 1	−39	e 22 22	[−47]	e 46·4	—
Fresno	N.	86·5	43	e 12 43	+ 2	—	—	—	—
Nanking		87·0	310	12 44	+ 1	23 4	[− 9]	e 38·5	45·7
Tinemaha		87·6	43	e 12 44	− 2	e 23 29	− 4	—	—
Tucson		89·2	50	12 53	− 1	23 25	[− 3]	e 36·7	—
Tacubaya	N.	90·4	67	e 12 55	− 4	—	—	—	—
Chiufeng		93·7	315	i 13 14	0	23 41	[−13]	—	—
Huancayo		94·1	106	13 34	+18	23 56	[0]	43·9	—
Butte		96·7	39	—	—	e 23 49	[−20]	e 44·9	—
La Paz		97·4	113	13 55	+23	i 24 15	[+ 2]	45·4	—
College		98·4	11	—	—	e 23 35	[−43]	e 42·7	—
Colombo		104·3	268	18 20	PP	—	—	—	57·8
Florissant		106·7	52	e 18 40	PP	—	—	e 52·0	60·0
St. Louis	E.	106·8	52	e 18 22	[+15]	e 25 32	{−12}	e 52·4	—
Kodaikanal	E.	108·0	270	e 18 48	PP	e 28 18	PS	—	57·1
Rio de Janeiro	N.	110·8	134	e 19 25	PP	—	—	—	—
Columbia		111·5	61	—	—	e 24 49	[−31]	e 51·5	—
Cape Town		113·6	194	—	—	(e 26 22)	{−10}	55·2	71·4

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Agra	E.	115·0	287	—	—	i 25 20	[−14]	—	—
Bombay		116·0	277	e 19 47	PP	i 29 25	SKSP	—	68·6
San Juan		117·4	84	e 15 55	+48	e 25 31	[−11]	e 54·5	—
Philadelphia		118·0	58	e 20 3	PP	e 25 31	[−13]	55·6	—
Ottawa		119·2	52	—	—	e 25 41	[− 7]	e 50·4	—
Vermont		120·7	53	e 23 51	?	e 25 37	[−15]	e 56·5	—
Oak Ridge		121·3	55	e 20 31	PP	e 25 49	[− 5]	e 58·4	—
Weston		121·5	55	e 19 12	[+23]	—	—	64·1	—
Frunse		122·7	304	e 18 57	[+ 5]	—	—	—	—
Andijan		123·8	300	e 18 49	[− 6]	—	—	—	—
Tashkent		126·2	300	e 18 47	[−12]	i 28 3	{+ 6}	e 52·5	84·5
Samarkand		127·6	298	e 18 59	[− 3]	—	—	—	—
Sverdlovsk		132·4	320	19 21	[+10]	32 1	SKSP	55·4	77·6
Ivigtut		135·3	32	22 55	PKS	—	—	66·4	—
Scoresby Sund		138·0	10	19 25	[+ 6]	—	—	e 56·4	—
Baku		140·6	297	e 19 25	[+ 3]	—	—	62·4	84·7
Grozny		143·6	303	e 18 58	[−31]	—	—	—	—
Tiflis		144·5	300	i 19 31a	[− 2]	e 29 39	{−11}	64·9	—
Moscow		144·9	326	e 19 34	[0]	29 37	{−16}	56·8	78·9
Pulkovo		145·5	335	e 19 33	[− 2]	—	—	71·4	77·6
Upsala	N.	149·1	346	i 19 45	[+ 5]	—	—	e 80·4	—
Bergen		150·2	358	i 19 50	[+ 8]	—	—	e 72·4	—
Theodosia		150·6	309	e 19 41	[− 2]	—	—	—	—
Simferopol		151·5	309	19 48	[+ 4]	—	—	—	—
Ksara		151·6	285	i 19 45	[+ 1]	e 33 33	SKSP	70·4	81·4
Yalta		151·6	308	19 47	[+ 3]	—	—	—	—
Sebastopol		152·0	309	19 55	[+11]	—	—	—	—
Copenhagen		154·0	347	19 50	[+ 3]	33 49	SKSP	72·4	—
Edinburgh		154·5	8	e 24 25?	PP	i 43 28	SS	e 81·4	97·9
Helwan		155·1	275	e 19 52	[+ 4]	—	—	—	—
Hamburg		156·5	350	e 19 50	[0]	—	—	e 75·4	92·4
Rathfarnham Castle		156·5	13	—	—	i 30 12	{−47}	73·4	85·4
Stonyhurst		156·6	8	e 25 25?	PP	e 43 55	SS	e 78·4	85·7
Bidston		157·0	10	—	—	e 45 0	SS	e 75·4	92·4
De Bilt		158·5	355	e 19 55	[+ 3]	e 44 14	SS	e 63·4	97·6
Jena	Z.	158·6	343	e 19 55	[+ 3]	—	—	—	—
Prague		158·6	340	e 20 49	{+11}	e 34 7	SKSP	e 78·4	82·4
Oxford		158·8	7	i 20 28	{−11}	i 30 52	{−20}	e 75·4	91·1
Kew		159·2	5	i 19 55a	[+ 3]	i 30 10	{−64}	e 75·4	92·4
Vienna		159·5	333	e 19 54	[+ 1]	—	—	—	—
Uccle		159·9	356	i 19 59	[+ 5]	e 43 25	SS	e 65·4	—
Jersey		161·2	9	—	—	e 44 46	SS	81·9	—
Stuttgart		161·2	346	e 19 58a	[+ 3]	e 31 10	{−15}	e 77·4	89·4
Zagreb		161·5	329	e 20 3	[+ 8]	—	—	e 83·4	93·8
Strasbourg		161·7	349	i 19 57a	[+ 1]	—	—	e 96·4	—
Paris		161·9	0	i 19 59	[+ 3]	—	—	80·4	91·4
Basle		162·7	348	e 20 1	[+ 4]	—	—	—	—
Zurich		162·7	346	e 19 50	[− 7]	—	—	—	—
Chur		162·9	343	e 19 56	[− 1]	—	—	—	—
San Fernando		170·8	49	20 36	[+32]	e 32 36	{+20}	85·4	—
Granada		171·8	36	e 20 10	[+ 5]	—	—	—	—
Almeria		172·7	32	e 20 14	[+ 9]	—	—	—	—

Additional readings :—
New Plymouth i = +3m.27s.
Wellington i = +3m.14s., +3m.26s., +3m.50s., +4m.44s., +5m.9s., +5m.37s., and +6m.7s.
Christchurch i = +3m.42s., iEZ = +14m.7s.
Apia e = +4m.22s. and +11m.22s.
Riverview iZ = +5m.40s., iE = +6m.34s., iN = +7m.34s.
Melbourne i = +7m.32s. and +12m.0s.
Adelaide e = +11m.1s., i = +15m.42s. and +17m.54s.
Honolulu e = +17m.12s., ePS = +18m.10s., eSS = +21m.30s., eSSS = +22m.21s.

Continued on next page.

Perth e = +24m.25s.?
Batavia PEN = +11m.35s., iN = +16m.37s., eN = +20m.43s.
La Jolla ePPE = +16m.19s.
Pasadena iP = +12m.37s., iPPNZ = +16m.9s., ePPPZ = +17m.53s., iSN = +23m.14s.
Lick ePE = +13m.9s.
Mount Wilson iPPZ = +16m.12s.
Berkeley i = +12m.48s., eZ = +21m.44s., iE = +23m.0s., eN = +23m.2s.
Ukiah eS = +23m.5s., e = +23m.20s. and +23m.30s.
Nanking ePP = +16m.30s., SS = +28m.20s., e = +29m.25s.
Tacubaya iSKPN = +17m.16s.
Tucson eSKS = +23m.10s., S = +23m.47s., PS = +24m.50s., eSS = +29m.49s., eSSS = +33m.13s.
Chiufeng iSEN = +24m.20s., PSE = +25m.19s.
Huancayo PP = +17m.20s., e = +17m.47s., S = +25m.37s., e = +25m.48s., SS = +31m.6s., SSS = +34m.58s.
Butte eS = +25m.7s., ePS = +26m.7s.
College e = +22m.32s.
Florissant iZ = +18m.46s. and +18m.54s., eZ = +27m.6s., iZ = +27m.13s.
St. Louis epPKPE = +18m.51s., eE = +20m.29s., eE = +26m.41s.
Kodaikanal iE = +21m.17s.
Columbia ePS = +28m.43s., eSS = +34m.55s.
Cape Town SKKS is recorded as eLE.
San Juan ePP = +19m.56s., SKS = +25m.36s., e = +25m.59s., ePS = +29m.39s.
Philadelphia e = +26m.47s., ePS = +29m.43s., iPS = +29m.51s., ePPS = +31m.17s., eSS = +36m.11s., eSSS = +41m.1s.
Ottawa e = +29m.43s., +35m.49s., and +44m.37s.
Vermont eSKKS = +27m.13s., e = +29m.52s., ePPS = +31m.25s., eSS = +36m.49s.
Oak Ridge eN = +27m.23s., eZ = +30m.29s. and +31m.45s., eE = +37m.17s.
Weston iPP = +20m.32s.
Tashkent iPKP = +22m.6s., PPP = +26m.3s, PS = +33m.34s., SS = +39m.55s., SSS = +45m.49s.
Sverdlovsk iPKP = +22m.47s., i = +23m.6s., e = +35m.3s., SS = +40m.25s.?
Scoresby Sund PP = +22m.31s., PKP = +22m.56s., SS = +40m.25s. ?
Baku i = +23m.7s., e = +34m.25s.
Tiflis PKPZ = +22m.44s., SKSPE = +35m.7s., SSE = +42m.43s., eN = +58m.25s.
Moscow PKP = +22m.47s., PP = +24m.17s., PPP = +27m.33s., PS = +34m.47s.
Simferopol i = +20m.16s.
Ksara PP = +23m.19s., e = +31m.39s., ePPS = +36m.29s.
Yalta i = +20m.7s.
Sebastopol i = +20m.14s.
Copenhagen +20m.17s. and +20m.42s., PP = +23m.43s., eE = +39m.1s., SS = +43m.31s.
Edinburgh e = +40m.32s. and +60m.15s.
Helwan e = +20m.15s. and +36m.27s.
Rathfarnham Castle e = +41m.22s. and +56m.46s.
Stonyhurst e = +59m.45s.
Bidston i = +48m.40s.
De Bilt iZ = +24m.9s. =PP +1s., eN = +24m.16s.
Prague e = +47m.25s. ?
Oxford i = +23m.45s., +24m.31s., and +25m.1s.
Kew ePPNZ = +25m.2s., iPPPZ = +32m.40s., eSSSEN = +44m.13s., eEN = +45m.11s., eN = +48m.44s., eSSSE = +50m.44s., eN = +52m.37s., iSSSE = +59m.26s.
Uccle eE = +50m.25s. =SSS +6s.
Jersey i = +46m.54s. and +77m.45s.
Stuttgart ePKPZ = +20m.9s. and +20m.44s., ePP = +24m.23s., ePS = +37m.45s., e = +38m.11s., eSS = +44m.47s., eSPS = +45m.43s.
Strasbourg iPP = +24m.25s. ?
Paris PP = +24m.25s., e = +30m.5s.
Chur i = +20m.48s., e = +24m.29s. =PP −2s.
San Fernando SS = +46m.32s.
Granada iPP = +25m.22s.
Almeria i = +23m.11s.
Long waves were also recorded at Hyderabad, Phu-Lien, Vladivostok, Ann Arbor, Chicago, Bozeman, and other European stations.

Oct. 4d. Readings also at 0h. (Bucharest, Sofia, Simferopol, and Tiflis), 4h. (Jena), 5h. (Medan), 6h. (Stonyhurst), 7h. (Kodaikanal and Scoresby Sund), 9d. (Nanking), 10h. (Hong Kong), 14h. (near Bucharest and Sofia), 16h. (near Mizusawa), 18h. (Medan), 19h. (near Berkeley), 20h. (Andijan), 21h. (Calcutta).

Oct. 5d. 6h. 8m. 39s. Epicentre 9°·0N. 122°·7E. N.3.

A = −·5336, B = +·8312, C = +·1564 ; δ = +8 ;
D = +·842, E = +·540 ; G = −·085, H = +·132, K = −·988.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		5·8	344	1 25k	+ 3	2 33	+ 5	—	—
Kosyun		13·1	352	2 57	− 6	—	—	—	—
Arisan		14·6	353	3 29	+ 6	6 23	+18	—	—
Isigakizima		15·4	5	3 21	−13	—	—	—	—
Hong Kong		15·6	329	3 33a	− 3	6 32	+ 3	8·2	9·5
Phu-Lien		19·5	310	i 4 23	− 1	8 2	+ 6	9·4	—
Batavia		21·9	228	4 48	− 2	i 8 56	+12	—	—
Zi-ka-wei	Z.	22·2	358	e 4 53	0	8 53	+ 3	—	15·6
Nanking		23·3	351	5 7	+ 3	i 9 19	+ 9	e 12·9	—
Kagosima		23·7	17	5 13	+ 6	—	—	—	—
Miyazaki		24·3	18	5 16	+ 3	9 28	0	—	—
Medan		24·5	260	5 15	0	9 32	0	—	—
Nagasaki		24·6	15	5 18	+ 2	—	—	—	—
Hukuoka B		25·6	16	e 5 29	+ 4	9 59	+ 8	—	—
Hamada		27·3	17	5 26	−15	—	—	—	—
Chiufeng		31·6	351	6 22	+ 3	i 11 25	− 4	e 13·7	20·5
Vladivostok		35·1	13	e 4 51	?	e 12 21	− 2	14·0	23·8
Perth		41·5	189	16 21	SS	—	—	—	—
Colombo		42·4	270	5 30	?	14 9	− 2	21·0	24·2
Kodaikanal	E.	44·6	276	e 8 17	+ 7	i 14 45	+ 1	21·2	26·1
Agra		45·9	300	8 15	− 5	14 58	− 5	—	—
Bombay		49·2	287	e 8 44	− 1	15 48	− 2	—	32·9
Frunse		53·9	318	e 8 8	?	—	—	—	—
Andijan		54·6	314	e 8 7	?	—	—	—	—
Tashkent		56·9	314	i 9 48	+ 6	i 17 31	− 4	e 26·0	35·7
Sverdlovsk		67·4	329	—	—	i 19 55	+ 5	32·4	44·0
Baku		71·1	310	11 23	+ 6	20 36	+ 2	36·4	48·5
Tiflis		75·0	312	e 11 45	+ 5	e 21 17	− 3	41·7	52·3
Moscow		79·8	326	e 12 2	− 5	e 22 2	−12	41·7	48·5
Ksara		82·4	303	i 12 30k	+10	22 49	+ 8	—	—
Pulkovo		83·4	330	12 26	+ 1	29 39	?	44·3	50·9
Helwan		86·7	300	i 12 44	+ 2	23 21	− 3	—	—
Copenhagen		93·7	329	—	—	24 21	− 9	51·3	—
Scoresby Sund		97·0	350	—	—	24 8	[− 3]	51·3	—
Stuttgart		98·2	323	—	—	e 26 21?	+70	e 55·3	—
De Bilt		99·0	327	—	—	e 24 21?	[0]	e 52·3	62·0
Paris		102·1	324	—	—	e 24 21?	[−15]	58·3	63·3

Additional readings :—
Hong Kong PP = +3m.43s., SS = +6m.43s.
Batavia PZ = +4m.50s.
Nanking iE = +10m.19s.
Agra ePPE = +9m.58s., eSSE = +18m.2s.
Frunse e = +8m.51s.
Sverdlovsk i = +20m.54s.
Tiflis ePPPE = +16m.14s., ePSE = +22m.1s., eN = +29m.51s.
Ksara PS = +23m.37s.
Helwan SKS = +23m.3s.
Copenhagen +30m.45s.
Prague e = +49m.33s.
Long waves were also recorded at Rathfarnham Castle, Christchurch, Edinburgh, Stonyhurst, Kew, Prague, Granada, Strasbourg, Hyderabad, Tucson, Ucele, and Upsala.

Oct. 5d. 7h. 10m. 12s. Epicentre 29°·4N. 141°·9E. (as on 1932 Nov. 27d.). X.

A = −·6856, B = +·5376, C = +·4909 ; δ = +4 ;
D = +·617, E = +·787 ; G = −·386, H = +·303, K = −·871.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		7·1	325	e 1 33	− 8	2 47	−14	—	—
Sumoto		7·7	312	—	—	e 3 0	−16	—	—
Kobe		7·8	315	e 1 24	−27	e 3 8	−11	—	5·6
Mizusawa	E.	9·7	356	e 2 23	+ 6	3 23	−43	—	—
Hukuoka B		10·7	296	e 2 14	−17	e 5 12	S*	—	—
Zinsen		15·1	306	e 3 23	− 7	—	—	e 8·6	—
Nanking		20·0	283	e 4 32	+ 2	e 8 58	+52	e 12·6	—
Chiufeng	E.	23·6	304	5 4	− 2	i 9 14	− 2	—	16·5
Tiflis		75·8	310	11 46	+ 1	e 21 20	− 9	40·3	48·3
Tinemaha	Z.	79·9	53	i 12 7	0	—	—	—	—
Mount Wilson	Z.	81·4	55	i 12 15	0	—	—	—	—
Pasadena	Z.	81·4	56	e 12 17	+ 2	—	—	—	—

Additional readings :—
Sumoto eZ = +3m.27s., e = +4m.53s.
Kobe eE = +3m.0s.
Long waves were also recorded at Copenhagen, De Bilt, Stuttgart, Kew, Strasbourg, and stations of U.S.S.R.

Oct. 5d. 9h. 44m. 24s. Epicentre 1°·5N. 126°·4E. (as on 1931 Sept. 29d.). N.1.

A = −·5932, B = +·8046, C = +·0262 ; δ = −5 ;
D = +·805, E = +·593 ; G = −·016, H = +·021, K = −1·000.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s	m. s.	s.	m.	m.
Amboina		5·5	161	0 37	−41	—	—	—	—
Manila		14·2	338	i 3 19a	+ 1	6 20	+24	—	—
Malabar		20·7	246	e 4 41	+ 4	i 8 39	+19	—	—
Batavia		21·0	248	4 39a	− 1	8 47	+21	e 11·6	—
Kosyun		21·3	346	4 40	− 3	8 30	− 2	—	—
Taito		21·9	348	4 50	0	—	—	—	—
Takao		21·9	346	4 39	−11	8 26	−18	—	—
Tainan		22·3	347	4 57	+ 3	8 55	+ 3	—	—
Soengei Langka		22·3	252	e 4 53	− 1	8 54	+ 2	—	—
Arisan		22·7	348	4 55a	− 3	8 58	− 1	—	—
Isigakizima		22·9	355	4 53	− 7	9 12	+ 9	—	—
Hokoto		23·0	343	4 37	−24	—	—	—	—
Karenko		23·0	349	4 57	− 4	—	—	—	—
Taityu		23·3	346	4 59	− 5	8 57	−13	—	—
Giran		23·7	349	5 9	+ 2	9 34	+16	—	—
Hong Kong		24·0	331	5 7k	− 3	9 22	− 1	12·1	14·8
Taihoku		24·0	349	5 8a	− 2	9 18	− 5	—	15·3
Naha		24·8	3	5 19	+ 1	9 45	+ 8	—	—
Nake		27·0	6	5 37	− 1	10 14	− 1	—	—
Phu-Lien		27·3	316	i 5 41	0	10 18	− 2	11·6	14·3
Medan		27·7	275	i 5 50	+ 6	i 10 41	+14	—	—
Miyazaki		29·6	8	6 11a	+10	—	—	—	—
Titizima		29·7	29	6 2	0	—	—	—	—
Zi-ka-wei	Z.	30·1	352	i 6 6k	0	10 27	−39	15·7	17·8
Kagosima		30·3	7	6 9	+ 1	—	—	—	—
Tomie		31·2	4	6 13	− 3	10 43	−40	—	—
Nagasaki		31·4	5	6 18	+ 1	11 19	− 7	—	—
Nanking		31·4	347	i 6 16	− 1	i 11 10	−16	e 15·7	18·5
Unzendake		31·4	6	6 9a	− 8	10 39	−47	—	—
Kumamoto		31·6	8	6 20k	+ 1	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Simidu		31·9	10	6 22	0	—	—	—	—
Ooita		32·1	9	6 53	+29	—	—	—	—
Hukuoka		32·3	7	6 26	+ 1	11 32	− 8	e 14·1	—
Hukuoka B		32·3	7	6 23	− 2	11 0	−40	14·7	21·6
Koti		32·7	11	6 27	− 2	—	—	—	—
Siomisaki		33·1	16	6 31a	− 2	11 46	− 6	—	—
Hirosima		33·3	10	6 37	+ 3	11 52	− 3	—	—
Tokusima		33·5	13	6 37k	+ 1	—	—	—	—
Husan		33·7	3	6 38	0	11 56	− 5	—	—
Wakayama		33·7	14	6 36a	− 2	11 55	− 6	—	—
Hamada		33·8	8	6 39k	0	—	—	—	—
Sumoto		33·8	14	6 36a	− 3	11 54	− 9	—	16·8
Okayama		33·9	12	6 42	+ 3	12 13	+ 9	—	—
Hatidyozima		34·0	20	6 42a	+ 2	—	—	—	—
Kobe	E.	34·2	14	6 44a	+ 2	e 12 9	0	e 14·3	—
	N.	34·2	14	6 41a	− 1	e 12 5	− 4	e 14·3	19·0
	Z.	34·2	14	6 40a	− 2	e 12 0	− 9	e 14·5	19·2
Yagi		34·2	14	6 44	+ 2	—	—	—	—
Osaka		34·3	14	6 44	+ 1	—	—	—	—
Osaka B		34·3	14	6 42	− 1	—	—	—	—
Taikyu		34·4	3	e 6 46	+ 2	12 6	− 6	e 18·0	—
Tu		34·5	15	6 53	+ 8	12 13	− 1	—	—
Kameyama		34·6	15	6 45a	− 1	12 5	−10	—	—
Kyoto		34·6	14	6 47	+ 1	—	—	—	—
Kanazawa		34·6	14	7 14	+28	12 48	+33	—	—
Sakai		34·6	10	6 47	+ 1	—	—	—	—
Hamamatu		34·9	17	6 44	− 4	12 7	−13	—	—
Perth		34·9	198	6 46	− 2	12 26	+ 6	—	15·6
Toyooka		34·9	13	6 50k	+ 2	12 15	− 5	16·7	19·7
Hikone		35·0	14	6 41k	− 8	12 2	−19	—	—
Ibukisan		35·1	14	6 51k	+ 1	12 19	− 4	—	—
Nagoya		35·1	15	7 26	+36	—	—	14·8	—
Gihu		35·2	15	6 40k	−11	12 4	−20	—	—
Ito		35·5	18	6 55	+ 2	—	—	—	—
Numadu		35·5	18	6 54	+ 1	—	—	—	—
Misima		35·6	18	6 59	+ 5	12 36	+ 6	—	—
Iida		35·6	17	7 1	+ 7	—	—	—	—
Mera		35·7	19	7 3	+ 8	—	—	—	—
Hunatu		35·9	18	6 57	0	—	—	—	—
Husiki		36·0	14	7 3	+ 5	12 33	− 3	—	—
Kohu		36·0	18	6 56	− 2	12 30	− 6	—	—
Zinsen		36·0	0	i 6 49a	− 9	12 19	−17	e 15·8	—
Keizyo		36·1	1	i 6 57a	− 2	i 12 30	− 8	e 18·3	—
Takayama		36·1	14	7 17	+18	—	—	—	—
Yokohama		36·1	19	6 57	− 2	—	—	—	—
Matumoto		36·3	14	7 17	+17	—	—	—	—
Tokyo		36·4	18	6 57	− 4	—	—	—	—
Toyama		36·6	14	7 3k	0	12 36	− 9	—	—
Kumagaya		36·7	18	7 2	− 2	—	—	—	—
Oiwake		36·7	18	7 3k	− 1	12 40	− 7	—	—
Maebasi		36·8	18	7 13	+ 8	12 54	+ 6	—	—
Nagano		36·8	15	7 5k	0	12 42	− 6	—	—
Tyosi		36·8	21	7 1	− 4	—	—	—	—
Kakioka		37·0	17	7 3	− 3	12 37	−14	—	—
Tukubasan		37·0	17	7 3k	− 3	12 36	−15	—	—
Mito		37·2	17	7 4	− 4	—	—	—	—
Takada		37·2	14	7 11	+ 3	12 49	− 5	—	—
Utunomiya		37·2	17	7 7	− 1	—	—	—	—
Dairen		37·7	354	7 3	− 9	12 52	−10	—	—
Onahama		37·9	17	7 36	+22	—	—	—	—
Adelaide		38·2	165	i 7 16	− 1	i 12 59	−10	18·3	27·5
Aidu		38·2	19	7 25	+ 8	13 16	+ 7	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Niigata		38·2	17	7 24	+ 7	—	—	—	—
Hukusima		38·5	19	7 17	− 2	13 8	− 6	—	—
Yamagata		38·9	18	7 32	+ 9	—	—	—	—
Isinomaki		39·4	19	7 59	+32	—	—	—	—
Chiufeng		39·7	347	i 7 27	− 2	i 13 25	− 7	—	—
Mizusawa		40·0	19	i 7 32	0	i 13 32	− 4	—	—
Akita		40·2	17	7 22	−12	13 25	−14	—	—
Aomori		41·4	17	7 44	0	—	—	—	—
Hatinohe		41·4	18	7 42	− 2	13 51	− 6	—	—
Vladivostok		41·9	7	i 7 47	− 1	e 13 56	− 9	20·4	—
Hakodate		42·3	16	7 56	+ 5	—	—	—	—
Riverview		42·3	149	e 7 52	+ 1	i 14 7	− 3	e 20·6	24·4
Calcutta	E.	42·5	304	7 57	+ 4	14 17	+ 4	20·2	29·3
Muroran		42·9	16	7 56	0	—	—	—	—
Melbourne		42·9	159	7 59	+ 3	14 21	+ 2	19·3	28·7
Urakawa		43·2	18	7 57	− 1	14 20	− 4	—	—
Sapporo		43·7	16	8 3k	+ 1	14 24	− 7	—	—
Obihiro		44·0	16	7 56	− 9	—	—	—	—
Haboro		45·0	15	7 56	−17	—	—	—	—
Nemuro		45·2	20	8 14	0	14 52	− 2	—	—
Colombo		46·7	278	8 27	+ 1	15 9	− 5	23·4	26·2
Kodaikanal	E.	49·4	283	8 46	− 1	i 15 45	− 7	i 22·8	28·4
Hyderabad		49·7	292	8 54	+ 5	15 59	+ 2	21·4	27·9
Agra	E.	52·9	303	9 7	− 6	i 16 27	−14	25·0	—
Dehra Dun		54·1	307	9 56	+34	17 16	+19	26·6	33·6
Bombay		55·2	293	9 29	− 1	17 1	−11	26·6	32·1
Arapuni		60·2	137	—	—	(19 1)	+42	33·8	36·6
Christchurch		61·1	143	10 10a	− 2	18 26	− 4	28·9	33·3
Wellington		61·2	140	i 10 36?	+23	18 46	+14	—	28·6
Frunse		61·9	319	10 14	− 4	18 33	− 8	—	—
Andijan		62·5	317	10 21	− 1	18 48	0	32·8	—
Semipalatinsk		62·5	329	i 10 20	− 2	e 18 38	−10	—	—
Apia		63·1	106	10 28	+ 2	i 18 54	− 2	27·6	—
Tashkent		64·9	317	i 10 34	− 4	i 19 20	+ 1	30·0	42·0
Tchimkent		65·0	317	e 10 36	− 3	e 19 17	− 3	32·0	—
Samarkand		65·9	313	e 10 46	+ 1	19 22	− 9	34·1	—
Sverdlovsk		75·7	329	i 11 52	+ 8	i 21 23	− 5	42·3	45·1
Honolulu		76·3	68	11 46	− 2	21 22	−13	34·8	—
Baku		78·8	312	i 12 2	+ 1	i 21 57	− 6	37·6	49·6
Tananarive		80·0	251	i 12 8	0	i 22 13	− 3	38·9	44·6
Tiflis		82·7	312	i 12 22	0	i 22 33	−11	35·8	50·4
Erevan		82·8	310	12 24	+ 2	22 37	− 8	—	—
Sotchi		86·6	314	12 44	+ 3	23 13	[+ 2]	42·6	—
College		86·9	25	11 54	−49	e 23 11	[− 2]	—	—
Moscow		88·1	326	i 12 46	− 2	23 13	[− 8]	43·0	51·8
Ksara		89·6	303	i 12 55a	− 1	23 46	− 6	—	—
Theodosia		89·6	315	i 12 56	0	i 23 23	[− 7]	e 45·6	—
Yalta		90·5	315	i 12 58	− 2	i 23 26	[−10]	35·4	—
Simferopol		90·6	315	i 13 0	0	i 23 28	[− 8]	45·3	—
Sebastopol		91·0	315	i 13 2	0	i 23 31	[− 8]	35·6	—
Pulkovo		91·8	330	i 13 1	− 5	23 59	{+10}	45·6	52·1
Sitka		93·2	32	—	—	23 41	[−10]	e 43·2	—
Helwan		93·7	300	i 13 16	+ 2	24 21	− 9	—	52·8
Bucharest		96·3	315	e 13 25	− 1	24 56	+ 2	46·6	58·6
Lemberg		96·8	321	e 11 8	?	(25 0)	+ 2	—	25·0
Upsala		98·0	331	13 27	− 7	i 24 51	−18	e 44·6	58·1
Sofia		98·5	313	e 13 38	+ 1	24 14	[− 4]	48·6	56·6
Belgrade		100·2	316	i 13 44	0	i 24 22	[− 5]	e 35·7	—
Copenhagen		102·0	329	13 50a	− 3	25 33	−11	47·6	—
Vienna		102·0	320	e 13 49	− 4	24 25	[−10]	51·1	56·6
Prague		102·7	322	e 13 55	− 1	e 25 36	−14	46·6	59·6
Graz		103·0	318	e 13 52	− 5	i 24 33	[− 7]	e 53·6	61·3
Seattle		103·0	40	e 18 26	PP	e 24 36	[− 4]	e 47·5	—
Zagreb		103·0	317	e 13 55a	− 2	e 24 29	[−11]	e 54·6	—
Bergen		103·4	334	14 0k	+ 1	e 24 39	[− 3]	44·6	53·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Cheb		104·0	323	e 14 2	0	e 24 42	[− 3]	e 50·6	63·1
Hamburg		104·1	327	i 14 1a	− 1	i 24 40	[− 5]	e 50·6	56·6
Jena		104·1	323	e 14 3	+ 1	e 25 36	{+12}	e 50·6	59·1
Ukiah		104·7	49	e 18 9	PP	e 24 39	[− 9]	e 47·9	—
Göttingen		104·9	325	i 14 7	+ 1	i 24 43	[− 6]	e 52·6	61·6
Scoresby Sund		105·1	350	14 5k	− 2	24 41	[− 9]	43·6	—
Capodimonte	N.	105·5	313	e 14 54	+45	e 25 4	[+12]	41·1	64·1
Berkeley		105·7	50	i 14 11	+ 1	e 24 44	[− 9]	e 48·4	—
Padova		105·8	318	e 14 9	− 1	24 52	[− 2]	e 56·6	—
Cape Town		106·0	236	e 14 20	+ 9	i 25 2	[+ 7]	e 49·8	57·1
Stuttgart		106·4	322	e 14 11a	− 2	e 24 49	[− 7]	e 43·1	59·0
Florence		106·7	316	e 14 22	+ 7	25 6	[+ 8]	—	—
Karlsruhe		106·7	323	e 13 54	−21	e 26 16	{+33}	e 55·6	—
Chur		106·9	321	e 14 15	− 1	—	—	—	—
De Bilt		107·3	325	14 15	− 3	e 24 56	[− 5]	e 54·6	68·5
Strasbourg		107·3	322	i 14 14a	− 4	i 26 15	{+28}	e 45·6	59·4
Zurich		107·3	321	e 14 18	0	—	—	—	—
Basle		107·8	322	e 14 18	− 2	—	—	—	—
Fresno	N.	107·9	51	e 14 22	+ 1	e 18 49	PP	—	—
Uccle		108·3	324	i 14 19a	− 4	i 24 59	[− 6]	e 49·6	61·7
Neuchatel		108·4	321	e 17 40	[−33]	—	—	—	—
Tinemaha		109·0	50	i 14 25	− 1	—	—	—	—
Edinburgh		109·6	332	i 19 1	PP	i 25 56	{− 8}	45·6	63·2
Butte		109·8	39	e 28 9	PS	—	—	e 45·7	—
Pasadena		109·9	53	i 14 28	− 3	i 25 59	{− 7}	i 45·3	—
Mount Wilson		110·0	53	e 14 28	− 3	—	—	—	—
Paris		110·3	323	i 14 30	− 2	25 7	[− 8]	55·6	63·6
Stonyhurst		110·4	330	e 18 39	[+20]	—	—	e 52·6	67·1
Kew		110·6	327	i 14 30a	− 3	e 26 6	{− 5}	e 41·6	67·2
Riverside		110·6	53	e 14 31	− 2	—	—	—	—
Oxford		110·9	328	e 13 42	−53	e 25 2	[−15]	e 50·6	65·7
Bozeman		110·9	39	—	—	e 28 35	PS	e 51·0	—
La Jolla	Z.	111·0	54	e 14 34	− 1	—	—	—	—
Jersey		112·1	326	e 19 17	PP	i 28 47	?	e 57·3	65·5
Rathfarnham Castle		112·6	331	i 10 41	?	i 25 12	[−13]	52·6	62·6
Barcelona		113·9	317	e 18 25	[− 5]	28 55	?	e 35·5	74·6
Algiers		115·1	311	e 17 36?	[−57]	e 25 20	[−14]	51·6	65·6
Tucson		116·3	53	e 14 58	− 4	i 26 51	{ 0}	e 52·6	—
Ivigtut		117·2	357	19 46	PP	25 32	[− 9]	57·6	—
Almeria		119·1	314	e 18 50	[+ 7]	e 28 44	?	e 65·0	—
Granada		119·7	315	i 20 14	PP	—	—	—	—
San Fernando		121·9	315	e 18 53	[+ 3]	30 7	SKSP	62·6	—
Chicago		126·9	32	e 20 28	PP	e 25 38	[−32]	e 50·6	—
Florissant		127·4	36	e 19 2	[0]	i 25 43	[−29]	e 62·3	—
St. Louis	E.	127·6	36	e 19 1	[− 1]	—	—	e 58·6	—
Ann Arbor	E.	128·5	28	—	—	e 28 42	{+30}	e 62·4	—
Ottawa		129·2	20	e 19 7	[+ 2]	—	—	e 58·6	—
Toronto		129·3	24	e 19 7	[+ 1]	—	—	60·6	—
Buffalo		130·1	24	i 19 8	[+ 1]	—	—	—	—
Tacubaya	N.	130·6	63	i 19 12?	[+ 4]	—	—	—	—
Vermont		130·8	18	e 19 6	[− 2]	e 26 37	[+16]	e 57·1	—
Ithaca		131·5	22	i 21 30	PP	—	—	—	—
Pennsylvania		132·3	25	i 22 37	PKS	—	—	—	—
Oak Ridge		133·1	17	i 19 16	[+ 4]	—	—	e 65·6	—
Weston		133·3	17	19 12	[0]	—	—	—	—
Fordham		133·8	21	19 14	[+ 1]	e 28 36	{−10}	—	—
Philadelphia		134·1	22	e 19 20	[+ 7]	e 31 22	SKSP	e 59·0	—
Columbia		136·1	33	e 21 47	PP	e 31 52	SKSP	e 60·3	—
La Plata		146·4	174	19 42	[+ 6]	—	—	64·1	—
Balboa Heights		152·1	67	e 19 36?	[− 8]	—	—	—	—
Huancayo		156·0	118	e 19 54	[+ 5]	30 49	{− 7}	e 73·6	—
Rio de Janeiro		156·3	205	e 20 0	[+11]	e 28 8	?	e 44·1	—
San Juan		156·6	30	e 19 48	[− 2]	31 19	{+19}	e 73·9	—

For Notes see next page.

NOTES TO OCT. 5d. 9h. 44m. 24s.

Additional readings :—
Hong Kong PN = +5m.12s., PP = +5m.38s., P_cP = +8m.56s., SS = +10m.14s.
Taihoku PE = +5m.11s.
Medan iN = +9m.37s.
Zi-ka-wei PPZ? = +6m.36s., iZ = +9m.10s., SSZ = +11m.36s., SSSZ = +11m.56s., SSSSZ = +12m.12s.
Nanking eN = +13m.7s. = SSS +2s., eE = +14m.6s.
Hamada i = +8m.32s.
Sumoto eNZ = +6m.39s.
Hatidyozima i = +7m.54s. = PPP −4s.
Kobe iP = +6m.44s.
Taikyu i = +17m.9s. = S_cS +0s.
Perth P_cS = +12m.53s., SS = +15m.11s.
Ito i = +8m.10s. = PP +3s.
Numadu i = +8m.41s.
Mera i = +8m.26s.
Zinsen iN = +7m.50s., iSE = +12m.25s.
Tokyo PP = +8m.20s.
Adelaide i = +7m.41s., +8m.46s. = PP +6s., +8m.54s. = PPP −1s., +14m.5s., +15m.42s. = SS +4s., and +17m.17s.
Chiufeng ipPE = +7m.57s., iPP?E = +9m.22s., iSSE = +15m.57s., iS_cS?E = +17m.37s.
Riverview iEN = +10m.0s., iN = +17m.14s., iE = +17m.25s., N = +17m.33s., E = +17m.41s.
Calcutta PPPE = +9m.56s., SSSE = +17m.41s.
Melbourne PP = +9m.39s., SS = +17m.19s.
Kodaikanal iPPE = +10m.27s., iPPPE = +11m.6s., iSSE = +18m.41s.
Hyderabad PP = +10m.59s.
Agra eN = +9m.12s., PPE = +11m.3s., PPPE = +11m.54s., iN = +16m.32s., SSE = +19m.54s., SSSE = +21m.19s.
Bombay PPEN = +11m.36s., PPPE = +12m.43s., S_cSEN = +18m.15s., SSE = +20m.47s., SSSE = +22m.6s.
Arapuni S = +25m.32s., SS? = +31m.26s. ; true S is recorded as PP?
Christchurch iP_cP? = +14m.26s., iS_cSEN = +20m.0s., P_cSS_cP = +25m.45s., G = +27m.21s., e = +30m.26s.
Apia ipP = +11m.4s., ePP = +12m.54s., ePPP = +14m.19s., esS = +19m.43s., eSS = +23m.36s.
Sverdlovsk L_q = +37·1m.
Honolulu i = +11m.49s. and +12m.10s., e = +12m.26s., i = +12m.32s., PS = +22m.1s., e = +22m.34s., +31m.19s., and +32m.24s.
Tananarive eE = +22m.8s., E = +22m.35s., eN = +26m.29s., eE = +26m.35s.
Tiflis SKSE = +22m.39s., SSN = +27m.51s., eSSSEN = +31m.11s., e = +34m.2s.
College e = +14m.55s., +15m.23s., +21m.51s., and +22m.10s., i = +22m.35s., e = +22m.54s. and +23m.26s., SS = +28m.35s., eSSS = +32m.54s.
Ksara i = +13m.16s., PS = +24m.42s.
Pulkovo iPP = +16m.29s., SKS = +23m.30s., PS = +25m.7s.
Sitka SKKS = +24m.17s., S = +24m.41s., PS = +25m.25s.
Helwan i = +13m.36s., PP = +17m.1s., SKS = +23m.47s.
Bucharest PPE = +17m.25s. and +19m.33s., SKSEN = +24m.2s., SKKSN = +24m.40s., PSEN = +26m.10s., PPSE = +26m.48s., SSE = +31m.51s., SSSN = +35m.16s.
Lemberg e = +21m.22s.
Upsala iSKSE = +24m.3s.
Sofia PPNE = +17m.38s., SKKSNE = +24m.48s., PS = +26m.24s.
Belgrade iZ = +17m.46s. = PP +2s., iNW = +21m.51s.
Copenhagen PP = +17m.45s., +18m.4s., SKS = +24m.28s., PSE = +26m.57s., PPSE = +28m.6s., eN = +30m.18s. and +32m.0s., SSE = +32m.48s., SSS = +36m.24s.
Vienna PP = +18m.27s., PS = +27m.36s., SS = +33m.46s.
Prague ePP = +17m.15s.
Graz iPPP = +19m.17s.
Seattle ePPP = +21m.4s., eS = +25m.52s., eSS = +33m.31s.
Zagreb e = +14m.15s., +16m.56s., and +18m.12s. = PP +7s., i = +25m.41s., e = +27m.11s. = PS −6s., e = +33m.6s.
Bergen PP = +17m.51s., eZ = +27m.11s., eN = +28m.43s.
Cheb e = +16m.55s., ePP = +18m.20s.
Hamburg eEN = +18m.20s. = PP +7s.
Jena ePN = +14m.6s., i = +18m.20s., eE = +25m.42s., eZ = +25m.48s., eN = +26m.58s., eE = +27m.2s., eEN = +27m.6s.
Ukiah eSKKS = +25m.7s., eSS = +33m.29s.
Göttingen iZ = +17m.37s., iPPZ = +18m.26s., iPPE = +18m.36s., iSEN = +25m.54s., ePSEZ = +27m.24s.
Scoresby Sund PP = +18m.28s., PPP = +20m.29s., SKKS = +25m.26s., S = +25m.58s., PS = +27m.29s., PPS = +28m.14s., eE = +32m.30s., SS = +33m.20s., SSS = +37m.6s.

Continued on next page.

Berkeley ePE = +14m.13s., iZ = +18m.15s., eN = +18m.21s., i = +18m.28s., iZ = +18m.30s., cE = +18m.33s., and +27m.49s. = PS + 4s.
Cape Town iPPE = +18m.29s., iPPN = +18m.36s., ePPPE = +20m.56s., iSKSN = +24m.42s., iSKSE = +24m.48s., iS = +26m.15s., iPSN = +26m.33s., iPSE = +27m.40s., eSS = +33m.34s., iSSS = +37m.41s.
Stuttgart eZ = +17m.25s., ePP = +18m.31s., e = +19m.27s., ePPP = +20m.53s., eS = +26m.8s., ePS = +27m.36s., ePKKP = +29m.51s., eSS = +33m.36s.
Chur e = +17m.40s.
De Bilt iPP = +18m.44s.
Strasbourg ePKP = +17m.41s., iPP = +18m.45s., i = +19m.11s. and +19m.36s., iPPP = +21m.1s., eSKS = +24m.53s., iPS = +27m.45s., iPPS = +28m.41s., iP_cSS_cP = +29m.5s., eSS = +34m.11s.
Zurich e = +17m.35s.
Basle e = +18m.27s.
Uccle iPKPZ = +17m.58s., iPPZ = +18m.51s., iSKSN = +25m.1s., iPS = +28m.3s., iPPSZ = +28m.56s.
Tinemaha ePKPZ = +18m.30s., ePPNZ = +18m.57s., iPKKPZ = +29m.49s., eZ = +32m.10s.
Edinburgh i = +19m.26s., +28m.16s., +29m.20s., +34m.58s., and +35m.25s.
Pasadena iPKP = +18m.30s., iPPEZ = +18m.59s., iPPPEZ = +21m.45s., iSN = +26m.37s., iPSEZ = +28m.24s., $iS_cSPZ?$ = +28m.45s., iPKKPZ = +29m.45s., iSKKPZ = +33m.40s., iPKPPKPZ = +37m.26s.
Mount Wilson iPKPZ = +18m.31s., iPPZ = +18m.53s., iPKKPZ = +29m.45s., iSKKPZ = +33m.39s., iPKPPKPZ = +37m.27s.
Paris PP = +19m.7s., S = +26m.42s., PS = +28m.24s.
Stonyhurst iPS = +28m.25s.
Kew iPPZ = +19m.8s., iZ = +19m.32s., eEN = +23m.37s., iPS = +28m.27s., iPPS = +29m.32s., eSSEN = +35m.35s., eSSSN = +39m.27s.
Riverside ePPEN = +19m.4s.
Oxford e = +18m.54s. and +23m.42s., i = +28m.28s.
Bozeman e = +45m.54s.
La Jolla iPKPZ = +18m.33s., iPP = +19m.9s., ePKKPZ = +29m.28s.
Jersey iPP? = +21m.41s., iPPP? = +23m.52s., e = +34m.54s.
Rathfarnham Castle PP = +19m.21s., i = +27m.2s. and +28m.33s.
Barcelona PP = +21m.55s.
Algiers ePP = +19m.16s., iPP = +19m.49s., SS = +29m.18s.
Tucson ePKP = +18m.42s., iPP = +19m.47s., ePS = +29m.19s., e = +29m.41s., eSS = +35m.48s., e = +36m.52s., eSSS = +40m.12s.
Ivigtut SKKS = +26m.48s., PS = +29m.30s., SS = 35m.42s.
Granada iPS = +29m.57s.
San Fernando ePKP = +21m.51s., PS = +34m.10s.
Chicago ePP = +20m.49s., e = +30m.32s., eSS = +37m.55s., SSS = +43m.19s., eL = +62m.42s.
Florissant ipPKPZ = +19m.26s., iPP = +21m.0s., ipPPEZ = +21m.22s., eSKPN = +21m.33s., ePPPZ = +23m.53s., epPPP = +24m.11s., ipPPPZ = +24m.14s., iSKKSEN = +27m.45s., iSN = +29m.16s., esSN = +29m.50s., iPPSZ = +32m.40s.
St. Louis epPKPE = +19m.22s., ePPE = +21m.0s., ipPPE = +21m.23s., eSKPE = +22m.34s., eSPE = +32m.30s.
Ann Arbor eE = +31m.36s., eE = +38m.36s.
Ottawa PP = +21m.14s., SKP = +22m.28s., i = +22m.48s., PS = +31m.41s., eE = +35m.44s., SSN = +38m.54s.
Toronto PP = +21m.11s., SKP = +22m.35s., PS = +31m.10s., PPS = +33m.8s., SS = +39m.3s.
Buffalo iSKP = +21m.19s., i = +23m.27s.
Tacubaya iSKPN = +22m.35s.
Vermont e = +21m.16s. = PP − 1s., ePP = +21m.46s., iPKS = +22m.36s., i = +23m.4s.
Ithaca iSKP = +22m.38s., iEN = +23m.2s.
Oak Ridge iZ = +19m.38s. and +21m.22s., iPS = +21m.43s., iE = +22m.6s., ePPSZ = +33m.10s., eE = +40m.18s.
Weston PP = +21m.41s., SKP = +22m.48s., PKP = +22m.54s., SKKP = +32m.8s.
Fordham ipP = +19m.30s., iSKP = +21m.42s., i = +22m.45s., e = +31m.49s.
Philadelphia ePP = +21m.41s., iPKS = +22m.45s., eSS = +39m.17s., e = +54m.46s.
Columbia e = +21m.56s., SKP = +22m.52s., e = +29m.38s., e = +57m.42s.
Huancayo e = +20m.7s., $ePKP_2$ = +20m.25s., e = +20m.51s. and +21m.7s., SKP = +23m.35s., e = +31m.38s., PSKS = +34m.36s., SS = +44m.47s., e = +64m.12s.
San Juan PKP_2 = +20m.19s., i = +20m.47s., e = +21m.26s. and +24m.41s., SKS = +26m.42s., PPP = +27m.19s., e = +27m.36s. and +33m.27s., PSKS = +34m.45s., e = +39m.6s., SS = +44m.20s., SSS = +50m.20s.
Long waves were also recorded at Durham,

Oct. 5d. 10h. 9m. 9s. Epicentre 47°·4N. 14°·7E. (as on Oct. 4d.). **X.**

A = +·6547, B = +·1718, C = +·7361 ; δ = −1.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Graz	0·6	122	i 0 4	− 5	—	—	0·1
Vienna	1·4	53	i 0 26	+ 6	i 0 50	+14	—
Zagreb	1·8	151	i 0 24	− 2	i 0 28	−18	0·8
Prague	2·7	356	e 1 1	+22	e 1 33	S_g	1·7
Ravensburg	3·5	279	—	—	e 1 41	S*	—
Chur	3·6	264	e 0 54	+ 3	e 1 42	S*	—
Stuttgart	3·9	291	—	—	e 1 56	S*	—
Jena	4·1	331	—	—	e 2 1	S*	2·4
Zurich	4·1	272	e 1 5	P*	e 2 14	S_g	—
Basle	4·8	275	e 1 4	− 4	—	—	—

Additional readings :—
Ravensburg eS_g = +1m.53s.
Chur eP_g = +1m.1s.
Stuttgart iS_gE = +2m.9s., i = +2m.16s.
Jena e = +2m.8s., eN = +2m.14s.
Zurich eP_g = +1m.17s.
Basle e = +1m.12s., and +1m.43s.

Oct. 5d. Readings also at 0h. (near Wellington), 1h. (Belgrade and Tortosa), 5h. (Nagoya and near Mizusawa), 6h. (Batavia, near Malabar and Nagoya), 7h. (near Algiers), 9h. (Heizyo), 11h. (near Santiago), 13h. (near Amboina and near Samarkand), 14h. (Samarkand), 16h. (near New Plymouth), 17h. (near Samarkand), 20h. (Sverdlovsk (2), Tashkent, Tiflis, Manila, near Mizusawa, Nagoya, Berkeley, Branner, and Lick), 21h. (Alicante, Baku, and Tashkent), 22h. (Branner, Lick, Baku, and near Fresno).

Oct. 6d. Readings at 2h. (La Paz), 3h. (near Wellington), 12h. (Berkeley (2), Branner (2), Lick, and Fresno (4)), 14h. (Andijan, Frunse, Samarkand, and near Nagoya), 15h. (Balboa Heights and Medan), 17h. (Sverdlovsk), 19h. (near Nagoya), 20h. (near New Plymouth and Wellington (2)), 21h. (Tiflis (2), and near Malabar), 22h. (near Erevan and Tiflis).

Oct. 7d. 3h. 1m. 40s. Epicentre 23°·5N. 123°·2E. (as on 1935 May 3d.). **X.**

A = −·5021, B = +·7674, C = +·3987 ; δ = −3 ;
D = +·837, E = +·548 ; G = −·218, H = +·334, K = −·917.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku	2·1	315	e 0 30	0	0 49	− 5	—	1·2
Nanking	9·4	335	e 2 6	− 7	e 4 30	S*	4·8	—
Phu-Lien	15·5	263	e 6 30	S	(e 6 30)	+ 3	—	—
Chiufeng	17·6	342	e 3 58	− 4	7 13	− 2	—	11·3
Vladivostok	20·9	18	—	—	e 8 2	−22	e 11·8	14·1
Tashkent	48·0	306	—	—	e 15 18	−15	e 25·3	31·2

Additional readings :—
Phu-Lien eS = +8m.38s.
Tashkent e = +18m.44s.
Long waves were also recorded at Hong Kong, Pulkovo, Ksara, Copenhagen, De Bilt, Uccle, Strasbourg, and Stuttgart.

Oct. 7d. Readings also at 0h. (Tiflis, near Santiago), 1h. (near Medan (2)), 2h. (Sverdlovsk and Santiago), 3h. (Berkeley, Branner, San Francisco, near Fresno, Lick, and near Nagoya), 4h. (Nagoya, Mizusawa, Tashkent, Vladivostok, Sverdlovsk, Mount Wilson, Pasadena, and Tinemaha), 5h. and 6h. (near Sumoto), 8h. (Samarkand), 9h. (Batavia), 11h. (Philadelphia), 14h. (Philadelphia and near Reykjavik), 15h. (Berkeley, Branner, Fresno, San Francisco, and near Lick), 16h. (near Reykjavik (2)), 17h. (Colombo, Kodaikanal, Ksara, Sverdlovsk, Tiflis, and Tashkent), 19h. (Berkeley), 21h. (Mount Wilson, Pasadena, and Tinemaha).

Oct. 8d. 20h. 27m. 55s. Epicentre 35°·2N. 140°·7E. (as on 1935 June 10d.). R.3.

$A = -·6323$, $B = +·5176$, $C = +·5764$; $\delta = -5$;
$D = +·663$, $E = +·774$; $G = -·446$, $H = +·365$, $K = -·817$.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Kiyosumi	0·3	261	0 7k	+ 3	0 15	+ 7	—
Kamakura	0·9	277	0 12	− 1	0 25	S*	—
Komaba	0·9	298	0 14	+ 1	0 29	+ 6	—
Tokyo Cent. Bur.	0·9	302	0 14	+ 1	0 26	+ 3	0·5
Tokyo Imp. Univ.	0·9	302	0 12	− 1	0 26	+ 3	—
Mitaka	1·0	296	0 16	+ 2	0 31	+ 5	—
Tukubasan	1·1	336	0 14	− 2	0 27	− 1	—
Susaki	1·5	249	0 20	− 1	0 37	− 2	—
Nagoya	3·0	270	e 0 44	+ 1	1 27	S*	2·0
Mizusawa	4·0	5	e 1 8	P*	2 0	S*	—

Oct. 8d. Readings also at 0h. (near Santiago and San Javier), 3h. (Tiflis, Simferopol, Yalta, Sofia, and near Bucharest), 4h. (Baku, Tiflis, Tashkent, Sverdlovsk, Pulkovo, Copenhagen, De Bilt, Uccle, Stuttgart, Paris, and Strasbourg), 5h. (Medan), 6h. (Nanking, near Sumoto, and Nagoya), 9h. (near Soengei Langka), 10h. (Ksara, Tashkent, Sverdlovsk, and Tiflis), 11h. (Montezuma, near Tucson (3) and near Nagoya), 12h. (Sumoto and near Tucson), 13h. (Sverdlovsk, Vladivostok, Tashkent, and near Tucson), 14h. (Tiflis), 15h. (Santiago and near Tucson), 16h. (Baku, Tashkent, Sverdlovsk, Piatigorsk, La Paz, Tiflis, Ksara, near Eerevan, Grozny, and near Samarkand), 17h. (La Plata, Mount Wilson, Pasadena, and Ksara), 18h. (near Tucson), 19h. (near Mizusawa), 20h. (Tucson), 21h. (Sverdlovsk, Tashkent, Vladivostok, Frunse, Tiflis, Pasadena, Mount Wilson, and near Andijan), 22h. (Tashkent), 23h. (Sverdlovsk).

Oct. 9d. 1h. 16m. 5s. Epicentre 36°·3N. 139°·2E. (as on 1932 Aug. 14d.). X.

$A = -·6101$, $B = +·5266$, $C = +·5920$; $\delta = -1$;
$D = +·653$, $E = +·757$; $G = -·448$, $H = +·387$, $K = -·806$.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Tukubasan		0·7	97	0 8	− 2	0 14	− 4	—
Komaba		0·8	149	0 10	− 1	0 19	− 2	—
Tokyo Imp. Univ.		0·8	144	0 12	+ 1	0 20	− 1	—
Kamakura		1·0	164	0 16	+ 2	0 30	+ 4	—
Kiyosumi		1·4	142	0 19	− 1	0 34	− 2	—
Nagoya		2·1	238	e 0 43	P_g	1 14	Ss	1·4
Mizusawa	E.	3·2	28	e 0 54	P*	1 27	+ 5	—

Oct. 9d. Readings also at 0h. (Nagoya, near Kobe, and Sumoto), 4h. (Taihoku and Nanking), 5h. (Sverdlovsk and Tashkent), 6h. (Nanking and Phu-Lien), 7h. (near Tucson), 9h. (near Granada), 10h. (Butte), 13h. (Manzanillo and Tacubaya (2)), 15h. (Piatigorsk, near Grozny, Erevan, and Tiflis), 16h. (Scoresby Sund), 17h. (Balboa Heights, Chiufeng, Mizusawa, Nagoya, Nanking, Sverdlovsk, and Tiflis), 18h. (Baku, Copenhagen, Tashkent, Mount Wilson, Pasadena, and Tucson), 19h. (Bucharest, Copenhagen, Sofia, Ksara, and Tiflis).

Oct. 10d. 1h. 25m. 32s. Epicentre 40°·3N. 126°·0W. (as on 1936 June 3d.). R.3.

A = ·−4483, B = −·6170, C = +·6468 ; δ = +1 ;
D = −·809, E = +·588 ; G = −·380, H = −·523, K = −·763.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ferndale		1·4	79	e 0 20	0	e 0 46	+10	—	—
San Francisco		3·7	132	i 0 52	− 1	—	—	—	—
Berkeley		3·8	128	e 0 52	− 2	e 1 9	−28	—	—
Branner		4·1	132	i 0 57	− 1	e 1 48	+ 3	—	—
Lick		4·5	129	e 1 3	− 1	—	—	—	—
Fresno	N.	6·0	124	e 1 27	+ 2	—	—	—	—
Tinemaha	N.	6·8	115	e 1 42	+ 5	i 2 51	− 2	—	—
Haiwee		7·5	121	e 1 59	+13	—	—	—	—
Mount Wilson	Z.	8·8	131	i 2 5	0	i 3 55	+11	—	—
Pasadena		8·8	132	i 2 2	− 3	i 3 49	+ 5	e 4·7	—
Tucson		14·6	119	e 3 16	− 7	e 6 35	+30	e 8·1	—
Little Rock		27·1	92	e 5 36	− 3	e 10 1	−16	e 16·5	—
Madison		27·2	71	i 5 40	0	e 16 52	S_cS	—	—
Florissant		27·3	82	e 5 39	− 2	e 10 25	+ 5	e 15·1	19·4
St. Louis	E.	27·5	82	e 4 41	−62	e 9 41	−43	—	—
Philadelphia		38·3	74	e 7 40	+22	e 13 15	+ 4	e 20·8	—
Scoresby Sund		56·8	23	—	—	16 28?	−66	28·5	—
Sverdlovsk		82·7	356	i 12 22	0	—	—	43·5	—

Additional readings :—
Ferndale eE = +37s., eE = +39s., eN = +2m.12s.
Berkeley iEN = +57s., eN = +1m.0s., eZ = +1m.2s., eN = +1m.4s., eE = +1m.6s.
Branner iN = +1m.40s., iEN = +1m.50s., iN = +2m.58s.
Tinemaha iN = +3m.35s.
Tucson i = +3m.25s.
Little Rock eEN = +5m.49s., iEN = +5m.55s., eN = +10m.27s.
Florissant iEN = +6m.8s., eE = +11m.49s.
St. Louis eE = +4m.46s.
Philadelphia e = −13s., e = +59s., e = +19m.33s., e = +20m.23s.
Long waves were also recorded at Ukiah, Sitka, Butte, Bozeman, Columbia, and Copenhagen.

Oct. 10d. 3h. 8m. 25s. Epicentre 7°·5N. 126°·0E. (as on 1935 June 1d.). R.2.

A = −·5828, B = +·8021, C = +·1305 ; δ = +5 ;
D = +·809, E = +·588 ; G = −·077, H = +·106, K = −·991.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Palau		8·4	91	1 43	+16	2 53	−41	—	—
Manila		8·6	326	2 5	+ 3	4 5	+26	—	—
Hong Kong		18·7	324	4 20	+ 5	7 46	+ 6	9·7	13·1
Phu-Lien		23·0	307	e 5 6	+ 5	e 9 28	+23	—	—
Batavia	Z.	23·8	236	5 8	0	—	—	—	—
Zi-ka-wei	Z.	24·1	350	5 11	0	9 37	+12	—	26·5
Kagosima		24·4	8	5 3	−11	—	—	—	—
Miyazaki		25·0	10	5 16	− 4	—	—	—	—
Nagasaki		25·5	16	5 22	− 3	—	—	—	—
Nanking		25·5	346	e 5 20	− 5	10 5	+15	—	—
Hukuoka B		26·4	9	e 5 31	− 2	e 10 49	+44	—	—
Medan		27·5	263	e 5 51	+ 8	10 9	−15	—	—
Taikyu		28·4	354	—	—	e 10 48	+10	—	—
Keizyo	E.	30·1	3	—	—	e 10 56	−10	—	—
Oiwake		31·0	20	5 53	−21	—	—	—	—
Nagano		31·2	19	6 5	−11	—	—	—	—
Vladivostok		35·9	7	i 6 55	− 2	e 12 27	− 8	19·1	27·0
Calcutta	N.	39·2	298	—	—	e 13 42	+18	—	—
Perth		40·6	193	12 35?	S	(12 35?)	−70	—	—
Kodaikanal	E.	48·0	278	e 8 35?	− 1	—	—	—	—

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Bombay	52·8	290	e 9 35?	+23	—	—	—	—
Frunse	57·2	318	e 9 35	−10	—	—	—	—
Andijan	57·9	315	e 10 11	+21	—	—	—	—
Tashkent	60·3	315	e 10 8	+ 1	i 18 28	+ 8	e 31·3	40·5
Samarkand	61·5	315	e 9 53	−22	—	—	—	—
Sverdlovsk	70·4	329	i 11 23	+10	i 20 38	+12	33·6	40·0
Baku	74·6	311	—	—	e 21 25	+10	37·6	—
Tiflis	78·5	311	12 0	0	e 22 0	+ 1	44·6	58·4
Moscow	82·9	325	12 23	0	22 40	− 6	37·1	52·5
Ksara	86·0	305	i 12 39a	+ 1	23 24	+ 6	—	56·6
Yalta	86·0	316	—	—	e 21 56	[−70]	—	—
Pulkovo	86·4	330	12 36	− 4	e 23 11	[+ 2]	46·6	54·0
Copenhagen	96·6	330	—	—	24 8	[− 1]	51·6	—
Scoresby Sund	99·0	350	—	—	24 17	[− 4]	57·6	—
Huancayo	158·5	104	e 20 35	{− 2}	e 30 53	{−17}	e 75·6	—

Additional readings :—
Keizyo eSE? = +17m.33s.
Tiflis eE = +12m.48s., ePPZ = +14m.59s. = PP +8s., ePPPZ = +17m.14s., SKKSE = +22m.54s., eN = +32m.8s.
Ksara PPPP = +19m.57s.
Copenhagen +31m.59s.
Huancayo e = +21m.53s.
Long waves were also recorded at Stuttgart, Kew, De Bilt, Strasbourg, Uccle, and Paris.

Oct. 10d. Readings also at 0h. (Oak Ridge), 1h. (Bozeman, Berkeley, Butte, Tucson, Ferndale, Florissant, and Ukiah), 2h. (Tacubaya, Graz, La Paz, Samarkand, Tashkent, and near Andijan), 3h. (near Mizusawa and Nagoya), 5h. (Apia), 6h. (Santiago, Hong Kong, and Manila), 8h. (Santiago), 11h. (Huancayo and near La Paz), 12h. (Sverdlovsk and Tashkent), 14h. (Sebastopol, Simferopol, Theodosia, near Yalta, and near Hukuoka B), 17h. (Mizusawa, near Christchurch, and Wellington), 18h. (Graz, Tashkent, Sverdlovsk, Berkeley, Branner, Lick, San Francisco, Tucson, Kobe, near Nagoya, and Sumoto), 19h. (Branner and Lick), 20h. (Branner), 22h. (Huancayo, La Paz, and Kobe).

Oct. 11d. Readings at 1h. (near Christchurch, Wellington, and near Samarkand), 3h. (Kew and near Wellington), 5h. (Manzanillo), 8h. (Bucharest), 12h. (Ksara. Tiflis, Christchurch, and Wellington), 13h. (near Nanking), 16h. (Helwan, Ksara, Baku, Tiflis, Grozny, Sverdlovsk, and Tashkent), 17h. (near Mizusawa), 20h. (near Balboa Heights), 22h. (Medan).

Oct. 12d. Readings at 0h. (Guadalajara, Tiflis, and Tucson), 5h. (Mizusawa, Simferopol, Theodosia, Yalta, and near Santiago), 6h. (Apia, Christchurch, and Huancayo), 7h. (Riverview, Wellington, Haiwee, Mount Wilson (2), Pasadena (2), Tinemaha (2), College, Tucson (2), Tashkent, Sverdlovsk, Ksara, Simferopol, Theodosia, Yalta, and Jena), 8h. (Honolulu, Baku, Sverdlovsk, Tiflis, Pulkovo, Copenhagen, De Bilt, and Stuttgart), 9h. (Christchurch, Apia, Haiwee, Mount Wilson, Pasadena, Tinemaha, Tucson, Ksara, and near Santiago), 10h. (Mount Wilson, Pasadena, Baku, Sverdlovsk, Frunse, Samarkand, Tchimkent, and near Andijan), 11h. (Mizusawa), 12h. (Tucson and Wellington), 13h. (Fresno and near Tucson), 15h. (Medan (2)), 17h. (Fresno and near Tucson), 18h. (near Balboa Heights), 21h. (Tucson and Ukiah), 22h. (San Juan), 23h. (Batavia, Hong Kong, and Medan).

Oct. 13d. 6h. 32m. 31s. Epicentre 1°·5N. 126°·4E. (as on 1936 Oct. 5d.). R.2.

$A = -\cdot5932,\ B = +\cdot8046,\ C = +\cdot0262\ ;\qquad \delta = -5.$

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Palau	9·9	54	2 28	+ 9	4 17	+ 6	—	—
Manila	14·2	338	3 28	+10	6 7	+11	—	—
Batavia	21·0	248	4 41	+ 1	8 31	+ 5	e 13·5	—
Hong Kong	24·0	331	5 10	0	9 20	− 3	—	15·0
Phu-Lien	27·3	316	e 5 40	− 1	e 10 13	− 7	13·5	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Medan		27·7	275	5 42	− 2	i 11 13	+46	e 17·5	—
Zi-ka-wei	z.	30·1	352	e 6 4	− 2	—	—	18·4	20·0
Nanking		31·4	347	6 19	+ 2	—	—	—	—
Nagoya		35·1	15	e 6 50	0	—	—	—	—
Gihu		35·2	15	6 50	− 1	—	—	—	—
Hunatu		35·9	18	6 58	+ 1	—	—	—	—
Kohu		36·0	18	6 58	0	—	—	—	—
Oiwake		36·7	18	7 3	− 1	—	—	—	—
Nagano		36·8	15	7 4	− 1	—	—	—	—
Hukusima		38·5	19	7 19	0	—	—	—	—
Chiufeng		39·7	347	e 6 59	−30	13 0	−32	—	—
Mizusawa		40·0	19	(e 7 30)	− 2	e 7 30	P	—	—
Vladivostok		41·9	7	e 7 47	− 1	e 14 5	0	20·5	28·9
Calcutta	N.	42·5	304	e 11 42	?	e 17 41	SSSS	—	—
Melbourne		42·9	159	—	—	e 16 13	?	—	29·5
Colombo		46·7	278	14 24	S	(14 24)	−50	—	29·9
Kodaikanal	E.	49·4	283	e 8 29?	−18	—	—	—	—
Bombay		55·2	293	e 9 29?	− 1	—	—	—	—
Frunse		61·9	319	e 10 5	−13	—	—	—	—
Andijan		62·5	317	e 10 20	− 2	e 18 44	− 4	—	—
Tashkent		64·9	317	e 10 24	−14	e 19 5	−14	e 28·1	62·4
Sverdlovsk		75·7	329	i 11 54	+10	i 21 27	− 1	35·0	45·7
Baku		78·8	312	e 12 11	+10	e 21 55	− 8	39·5	48·0
Tiflis		82·7	312	e 12 20	− 2	e 22 29	−15	42·5	54·1
Ksara		89·6	303	i 12 54	− 2	e 23 40	−12	—	—
Pasadena	z.	109·9	53	e 18 20	[+ 2]	—	—	—	—
Mount Wilson	z.	110·0	53	e 18 29	[+11]	—	—	—	—
Tucson		116·3	53	e 18 42	[+ 6]	—	—	e 51·9	—

Additional readings :—
Batavia ePEN = +4m.45s., iN = +9m.36s.
Hong Kong SS = +10m.41s.
Medan iP = +5m.49s.
Chiufeng iE = +13m.37s.
Mizusawa ePE = +6m.27s.
Tashkent SS = +23m.41s.
Ksara ePP = +16m.22s., eSS = +29m.32s.
Long waves were also recorded at Perth, Christchurch, Wellington, Huancayo, Pulkovo, and other European stations.

Oct. 13d. Readings also at 0h. (Tucson), 1h. (Frunse, near Andijan, and near Samarkand), 4h. (near Andijan and near Berkeley), 10h. (Tananarive, Branner, San Francisco, near Berkeley, Lick, and near Samarkand), 12h. (Branner, Berkeley, Fresno, and Sofia), 19h. (Mount Wilson, Pasadena, La Paz, and Tiflis), 20h. (Ksara and Samarkand).

Oct. 14d. 22h. 15m. 27s. Epicentre 20°·1S. 169°·4E. (as on 1931 Oct. 23d.). X.

A = −·9231, B = +·1727, C = −·3437 ; δ = +7 ;
D = +·184, E = +·983 ; G = +·338, H = −·063, K = −·939.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview		21·2	226	e 4 45	+ 3	i 8 42	+12	e 10·2	11·8
Sydney		21·2	226	e 4 38	− 4	e 8 41	+11	11·3	13·0
Wellington		21·7	171	i 4 55	+ 7	i 10 51	?	—	11·6
Christchurch		23·6	174	—	—	(9 25)	+ 9	9·4	12·2
Melbourne		27·6	225	e 6 0	+16	10 28	+ 3	13·3	15·2
Adelaide		30·9	235	e 5 15	?	e 12 9	+51	e 16·6	20·0
Batavia		62·2	275	10 23	+ 3	18 41	− 4	—	—
Vladivostok		72·0	334	e 11 19	− 4	—	—	—	—
Pasadena		87·7	52	i 12 47	+ 1	—	—	e 39·6	—
Mount Wilson	z.	87·8	52	i 12 46	− 1	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tinemaha	Z.	88·9	49	e 12 51	− 1	—	—	—	—
Tucson		92·4	57	e 13 9	0	—	—	e 42·0	—
Kodaikanal	E.	95·2	279	e 19 33?	PPP	—	—	—	—
Bombay	E.	102·3	286	e 17 33?	PP	—	—	—	—
Tashkent		110·5	309	e 19 6	PP	e 26 39	{+29}	e 49·6	68·2
Sverdlovsk		116·9	325	—	—	e 29 51	SKSP	51·6	—
Ksara		136·8	298	e 18 54	[−24]	—	—	—	—
Vienna		144·5	329	e 19 31	[− 2]	—	—	—	—
Jena	N.	144·6	335	e 19 33	[0]	—	—	—	—
Göttingen	E.	144·7	339	i 19 34	[+ 1]	—	—	—	—
Uccle		147·1	344	e 19 41	[+ 4]	—	—	e 74·6	—
Stuttgart		147·3	337	e 19 42a	[+ 4]	—	—	e 77·6	—
Kew		147·6	349	e 20 3	[+25]	—	—	e 75·6	—
Strasbourg		148·0	338	e 19 45	[+ 6]	—	—	e 73·6	—
Chur		148·6	334	e 19 41a	[+ 1]	—	—	—	—
Zurich		148·6	334	e 19 40a	[0]	—	—	—	—
Basle		148·9	336	e 19 45	[+ 5]	—	—	—	—
Neuchatel		149·6	337	e 19 47	[+ 6]	—	—	—	—

Additional readings :—
Riverview eN = +4m.51s., iE = +9m.2s.
Christchurch iZ = +9m.45s.
Adelaide i = +13m.56s. and +14m.52s., eE = +16m.9s.
Mount Wilson eZ = +16m.15s., iZ = +36m.13s.
Tinemaha eZ = +16m.57s.
Tashkent e = +35m.45s.
Ksara ipPKP = +19m.26s., ePP = +21m.47s., epPP = +22m.11s., esPP = +33m.59s.
Vienna iPZ = +19m.35s.
Jena iE = +19m.45s.
Göttingen iE = +19m.39s., eE = +19m.49s. and +19m.58s.
Stuttgart iZ = +19m.56s.
Chur e = +19m.45s.
Zurich i = +19m.45s.
Long waves were also recorded at Perth, Baku, Tiflis, Pulkovo, Copenhagen, De Bilt, Paris, Granada, and Bozeman.

Oct. 14d. Readings also at 1h. (De Bilt, Uccle, Paris, Strasbourg, Stuttgart, Alicante, Almeria, Granada, and San Fernando), 2h. (Granada), 10h. (Sofia), 12h. (Lick), 13h. and 14h. (2) (Oak Ridge), 15h. (Bucharest and near Sofia), 18h. (Baku, Tashkent, Ksara, and Sverdlovsk), 19h. (Frunse, Semipalatinsk, Tashkent, and Vladivostok,), 20h. (Frunse (2), Tashkent, Tchimkent, Sverdlovsk, near Andijan (2), and Samarkand), 21h. (Sumoto), 22h. (near Nagoya).

Oct. 15d. 4h. 20m. 0s. Epicentre 32°·4N. 133°·0E. N.3.

A = −·5758, B = +·6175, C = +·5358 ; δ = −7 ;
D = +·731, E = +·682 ; G = −·365, H = +·392, K = −·844.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Hukuoka		2·5	298	e 0 33	− 3	e 0 58	− 6	—
Hukuoka B		2·5	298	0 36	0	1 0	− 4	—
Sumoto	E.N.	2·5	41	0 35	− 1	1 0	− 4	1·1
	Z.	2·5	41	e 0 37	+ 1	e 1 8	+ 4	1·1
Kobe	E.	2·9	39	e 0 44	+ 3	e 1 12	− 2	1·3
	N.	2·9	39	e 0 38	− 3	e 1 10	− 4	1·3
	Z.	2·9	39	e 0 40	− 1	e 1 9	− 5	1·3
Toyooka		3·5	25	0 47	− 3	1 18	−12	1·5
Nagoya		4·3	48	e 1 1	0	1 56	+ 6	—
Taikyu		5·0	315	e 1 2	− 9	2 1	− 7	—

Toyooka gives also ePE = +50s.

Oct. 15d. 21h. 8m. 43s. Epicentre 36°·8S. 72°·3W. N.3.
(Epicentre Conception Chile).

$A = +\cdot2434$, $B = -\cdot7628$, $C = -\cdot5990$; $\delta = -9$;
$D = -\cdot952$, $E = -\cdot304$; $G = -\cdot182$, $H = +\cdot571$, $K = -\cdot801$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
San Javier		1·2	22	0 14	− 3	0 44	+13	—	—
Santiago		3·6	23	0 47	− 4	1 47	S*	—	—
La Plata		11·8	85	2 57	+11	5 11	+13	6·1	—
La Paz		20·7	13	4 53	+16	i 8 48	SS	11·4	13·6
Huancayo		24·9	354	e 5 18	− 1	9 50	+11	12·4	—
Rio de Janeiro		28·6	69	i 5 56	+ 3	i 11 7	+25	i 15·1	—
San Juan		55·5	8	e 9 27	− 5	17 13	− 3	e 27·5	—
Philadelphia		76·8	358	e 11 17	−33	—	—	—	—
Tucson		77·9	328	e 11 54	− 3	e 21 48	− 5	e 37·7	—
Mount Wilson	Z.	82·8	323	e 12 19	− 3	—	—	—	—
Pasadena		82·8	323	e 12 20	− 2	i 22 6	−39	i 40·4	—
Granada		97·5	48	e 17 36	PP	—	—	53·8	—
Paris		108·2	43	e 14 17?	− 5	—	—	56·3	67·3
Strasbourg		111·0	45	e 18 17?	[− 4]	—	—	e 52·3	—
Stuttgart		111·9	45	—	—	e 30 17?	?	e 59·3	—
Helwan		117·5	72	e 19 57	PP	e 29 57	?	—	73·6
Ksara		122·8	71	i 20 35	PP	e 25 53	[− 6]	—	—
Tiflis		132·1	64	e 21 34	PP	e 25 30	[−55]	e 66·3	82·1
Baku		135·5	67	e 20 57	?	e 29 37	{+41}	68·3	83·5
Kodaikanal	E.	141·9	126	e 22 17?	PP	—	—	—	—
Sverdlovsk		143·1	42	i 19 43	[+15]	—	—	69·3	83·0
Bombay		144·6	111	i 19 41	[+ 8]	—	—	—	82·7
Tashkent		150·1	69	i 19 23	[−19]	—	—	e 72·5	90·3
Andijan		152·4	71	e 20 20	[+35]	—	—	—	—
Frunse		154·0	66	e 20 22	[+35]	—	—	—	—

Additional Readings :—
La Paz iSN = +8m.52s.
Huancayo P = +5m.25s., e = +5m.44s., PP = +5m.49s., e = +6m.1s., PPP = +6m.20s., e = +9m.55s., +9m.59s., +10m.3s., and +10m.41s.
San Juan e = +17m.2s., ePS = +17m.26s.
Philadelphia e = +24m.12s., eSS = +26m.42s.
Tucson eSS = +26m.47s.
Mount Wilson eZ = +13m.21s.
Pasadena iZ = +13m.19s., eSN? = +21m.9s.
Helwan e = +22m.42s., PPP = +25m.37s. =SKS −5s.
Ksara PPP = +23m.17s.?, eSKKS = +27m.30s., ePPS = +31m.58s.
Tiflis eN = +22m.4s., eZ = +22m.38s. =PKS −5s.
Baku e = +22m.57s., +34m.9s., +43m.29s., +52m.5s., and +58m.29s.
Sverdlovsk i = +22m.59s., e = +31m.55s., and +35m.27s.
Tashkent e = +20m.16s., +23m.25s , e = +25m.31s., +28m.19s., and +36m.52s.
Andijan e = +24m.18s.
Long waves were also recorded at Bozeman, Pulkovo, Vladivostok, and other European stations.

Oct. 15d. Readings also at 0h. (Tucson), 2h. (near Kobe and Sumoto), 3h. (Ksara, Tucson, Haiwee, Mount Wilson, Pasadena, Santa Barbara, Piatigorsk, near Grozny, Erevan, Tiflis, and near Apia), 7h. (La Paz), 9h. (Andijan), 12h. (Florence), 13h. (Florence and near Sotchi), 14h. (near Hukuoka B), 15h. (Mizusawa), 17h. (near Erevan, Tiflis, and Florence), 19h. (Tacubaya), 20h. (Christchurch, Sebastopol, Simferopol (2), Theodosia (2), Yalta, Grozny, Piatigorsk, and near Sotchi), 21h. (Riverview, Mount Wilson, Pasadena, and Tucson), 22h. (Tucson).

Oct. 16d. 11h. 56m. 38s. Epicentre 6°·5S. 151°·0E. (as on 1935 Sept. 19d.). R.2.

$A = -\cdot8690$, $B = +\cdot4817$, $C = -\cdot1132$; $\delta = +1$;
$D = +\cdot485$, $E = +\cdot875$; $G = +\cdot099$, $H = -\cdot055$, $K = -\cdot994$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview		27·3	180	i 5 45a	+ 4	e 10 26	+ 6	e 13·6	15·7
Sydney		27·3	180	e 10 26	S	(e 10 26)	+ 6	15·0	15·4
Adelaide		30·6	200	e 5 59	−11	i 11 32	+18	—	18·9
Melbourne		31·8	189	—	—	i 11 45	+13	14·8	18·2
Manila		36·5	305	i 7 11a	+ 9	13 29	+45	19·9	—
Wellington		40·7	153	—	—	13 34	−13	19·8	24·0
Christchurch		41·6	156	7 38k	− 7	13 47	−13	18·6	21·6
Perth		42·7	228	10 7	PPPP	i 14 22	+ 6	23·4	30·4
Batavia		43·9	268	i 8 8	+ 4	i 14 4	−30	—	—
Hong Kong		46·1	310	8 26	+ 5	15 22	+16	—	24·6
Zi-ka-wei	Z.	47·1	325	8 29	0	15 25	+ 5	—	25·2
Nanking		49·3	323	i 8 44	− 2	i 15 45	− 6	20·8	—
Vladivostok		52·6	343	e 9 6	− 5	i 16 22	−15	22·4	26·9
Medan		53·2	280	e 9 26	+11	16 6	−39	—	—
Honolulu		57·3	60	—	—	e 16 52	−48	25·4	—
Colombo		72·2	279	11 29	+ 5	21 3	+16	—	—
Kodaikanal	E.	75·1	283	e 11 22?	−19	—	—	—	—
Hyderabad		75·6	290	11 46	+ 2	21 36	+ 9	—	—
Agra	E.	78·0	300	i 11 56	− 1	i 21 57	+ 3	—	—
Bombay		81·0	290	i 12 18	+ 5	i 22 33	+ 7	38·4	—
Semipalatinsk		83·0	323	e 12 21	− 2	22 34	[−10]	—	—
College		84·2	22	—	—	e 21 58	[−55]	e 33·5	—
Frunse		84·6	314	e 12 25	− 6	e 22 30	[−26]	—	—
Andijan		85·7	312	e 12 38	+ 1	23 14	− 1	—	—
Tashkent		88·1	312	i 12 48	0	i 23 34	− 4	e 40·4	48·8
Samarkand		89·6	310	12 56	0	23 46	− 6	—	—
Ukiah		90·8	51	e 19 46	PPPP	e 23 28	[− 9]	e 39·5	—
Berkeley		91·4	52	—	—	e 25 22?	?	—	—
Seattle		92·6	43	e 19 10	PPP	e 23 46	[− 2]	e 42·0	—
Santa Barbara	Z.	93·1	56	e 13 4	− 8	—	—	—	—
Pasadena		94·3	57	e 12 58	−19	e 33 58	SSS	e 39·9	—
Mount Wilson	Z.	94·4	57	i 12 57	−21	—	—	—	—
Tinemaha	N.	94·5	54	e 13 29	+11	—	—	—	—
Riverside	Z.	95·0	57	e 13 17	− 3	—	—	—	—
Sverdlovsk		95·7	327	i 13 28	+ 4	e 24 40	− 8	40·4	51·8
Bozeman		100·2	46	—	—	e 23 22?	[−65]	e 40·4	—
Tucson		100·4	58	e 13 46	+ 1	—	—	e 44·0	—
Chicago		117·5	46	—	—	e 29 16	PS	e 53·6	—
Helwan		118·9	300	20 7	PP	—	—	—	—
Ottawa		124·0	39	—	—	e 25 22?	[−40]	e 53·4	—
Columbia		124·8	52	—	—	e 41 28	SSS	—	—
Huancayo		130·3	112	e 19 12	[+ 4]	—	—	e 60·8	—

Additional readings :—
Riverview eSN = +10m.30s., eN = +10m.55s.
Sydney iS = +13m.42s.
Adelaide e = +6m.39s., e = +7m.19s., i = +11m.48s., e = +14m.59s., i = +15m.35s.
Wellington i = +16m.57s. =SSS −5s.
Christchurch S_cS = +17m.5s.
Batavia PEZ = +8m.18s.
Hong Kong SS = +18m.18s.
Bombay PSE = +23m.2s.
College eSS = +28m.22s., eSSS = +31m.40s.
Tashkent ePP = +16m.52s., PPS = +25m.11s.
Ukiah e = +21m.52s.
Pasadena eZ = +13m.11s.
Mount Wilson iZ = +13m.17s. and +15m.1s.
Riverside eN = +14m.18s.
Sverdlovsk PP = +17m.30s., PPS = +26m.25s., SS = +31m.4s.

Continued on next page.

Tucson ePP = +17m.20s., ePS = +26m.10s., eSS = +31m.34s., eSSS = +35m.34s., e = +40m.40s.
Chicago eSS = +35m.39s.
Ottawa eN = +31m.22s.?
Huancayo eSKP = +22m.25s., e = +36m.13s., eSS = +38m.3s., eSSS = +43m.3s.
Long waves were also recorded at Apia, Ksara, Madison, Kew, Copenhagen, Uccle, San Juan, Ivigtut, De Bilt, Rio de Janeiro, St. Louis, Pulkovo, Scoresby Sund, Paris, Strasbourg, Stuttgart, and San Fernando.

Oct. 16d. Readings also at 0h. (near Medan), 1h. and 2h. (Hamburg), 5h. (near San Javier), 6h. (near Chur and Zurich), 15h. (Branner, Lick, and Fresno), 16h. (Huancayo, San Javier, and near Santiago), 19h. (near Mizusawa and Nagoya), 20h. (near Andijan), 22h. (Mount Wilson, Pasadena, and Riverside).

Oct. 17d. 20h. 32m. 22s. Epicentre 34°·0N. 133°·0E. (as on 1935 Dec. 21d.). X.

$A = -\cdot5654$, $B = +\cdot6063$, $C = +\cdot5592$; $\delta = -2$;
$D = +\cdot731$, $E = +\cdot682$; $G = -\cdot381$, $H = +\cdot409$, $K = -\cdot829$.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Sumoto	1·6	77	0 20a	− 3	0 41	0	0·7
Kobe	1·9	69	e 0 29	+ 1	0 50	+ 1	0·9
Toyooka	2·2	44	0 29	− 2	0 55	− 2	1·0
Hukuoka	2·2	259	e 0 37	P_g	1 5	S*	—
Hukuoka B	2·2	259	e 0 36	P_g	1 5	S*	—
Nagoya	3·4	70	e 1 15	P_g	1 44	S_g	—

Oct. 17d. Readings at 0h. (Medan), 2h. (Ravensburg, Stuttgart, Strasbourg, near Basle, Neuchatel, Zurich, and near Berkeley), 4h. (Tucson and near Santiago), 8h. (Mizusawa), 9h. (Frunse, Samarkand, Tchimkent, and near Andijan), 10h. (Tacubaya), 12h. (Mizusawa), 13h. (Tiflis), 14h. and 15h. (near Andijan and Frunse), 18h. (near Apia), 20h. (Fresno), 21h. (Malabar and near Batavia).

Oct. 18d. 3h. 10m. 12s. Epicentre 46°·3N. 12°·5E. (as on 1934 June 8d.). R.2.

$A = +\cdot6745$, $B = +\cdot1495$, $C = +\cdot7230$; $\delta = +3$;
$D = +\cdot216$, $E = -\cdot976$; $G = +\cdot706$, $H = +\cdot156$, $K = -\cdot691$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Treviso	0·7	199	i 0 2	− 8	i 0 8	−10	—	—
Padova	1·0	206	i 0 10	− 4	i 0 20	− 6	—	—
Laibach	1·4	100	i 0 20	0	i 0 40	S*	—	0·7
Chur	2·1	285	i 0 31	+ 1	i 1 0	S*	—	—
Graz	2·2	69	i 0 29	− 2	i 0 56	− 1	—	1·2
Zagreb	2·4	101	e 0 34	0	i 1 16	S_g	—	1·9
Ravensburg	2·5	307	e 0 37	+ 1	i 1 8	+ 4	—	—
Florence	2·6	200	i−0 12?	−49	—	—	—	—
Zurich	2·9	292	e 0 42	+ 1	e 1 18	+ 4	—	—
Ebingen	3·0	308	e 0 45	+ 2	i 1 37	S_g	—	—
Stuttgart	3·3	318	i 0 49k	+ 2	i 1 28	+ 3	i 1·6	2·2
Vienna	3·3	52	i 0 47a	0	1 30	+ 5	—	2·3
Basle	3·6	292	e 0 51	0	e 1 36	+ 4	—	—
Cheb	3·8	351	e 0 55	+ 1	e 1 40	+ 3	—	2·6
Karlsruhe	3·8	315	e 0 54	0	1 36	− 1	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Neuchatel		3·8	282	e 0 54	0	e 1 57	S_g	—	—
Prague		4·0	18	0 56	− 1	e 2 0	S*	—	2·5
Strasbourg		4·0	307	i 0 56k	− 1	e 2 11	S_g	—	2·3
Budapest		4·7	73	e 1 5	− 2	2 17	S*	2·6	2·7
Jena		4·7	353	i 1 6	− 1	—	—	e 2·0	3·7
Capodimonte	E.	5·5	166	e 1 14	− 4	e 2 18	− 2	—	4·3
Göttingen		5·5	344	i 1 18	0	i 2 30	+10	e 2·6	3·1
Belgrade		5·7	102	e 1 21	0	i 2 29	+ 4	—	4·0
Marseilles		5·9	242	e 1 21	− 3	i 3 3	S_g	—	—
Uccle		7·0	313	e 1 41	+ 2	i 3 8	+ 9	—	—
Paris		7·2	294	i 1 47	+ 5	3 19	+15	3·7	3·8
Hamburg		7·4	349	e 1 47	+ 2	e 3 24	S*	—	4·8
Lille		7·6	308	1 55	+ 7	i 3 38	S*	—	—
De Bilt		7·6	324	e 1 52	+ 4	—	—	e 3·8	5·6
Lemberg		8·5	61	—	—	e 3 54	+18	—	7·0
Sofia		8·5	111	e 1 58	− 2	e 4 15	S*	—	—
Barcelona		8·9	240	—	—	e 5 10	S_g	—	6·5
Bagnères		9·4	254	e 3 10	+57	i 5 16	S_g	5·4	—
Copenhagen		9·4	359	2 14	+ 1	4 23	S*	4·8	—
Bucharest	N.	9·7	96	e 2 10	− 7	i 4 43	S*	6·0	7·6
Kew		9·9	306	e 2 32	+13	i 4 27	+16	6·2	6·6
Jersey		10·2	292	i 2 20	− 4	4 22	+ 4	5·1	5·5
Tortosa	N.	10·3	241	i 2 9	−16	4 16	− 5	5·0	5·9
Oxford		10·5	307	e 2 33	+ 5	—	—	—	5·9
Algiers		11·8	220	e 2 38	− 8	e 4 33	−15	5·8	—
Stonyhurst		12·1	314	—	—	5 48?	S*	—	—
Bidston		12·2	311	e 2 25	−26	i 4 27	−41	6·2	—
Durham		12·2	320	2 55	+ 4	6 7	S*	—	6·8
Rathfarnham Castle		13·9	307	i 3 31	+17	i 6 21	+32	7·5	9·6
Upsala		13·9	11	e 3 14	0	e 6 13	+24	e 7·2	8·2
Almeria		14·6	235	i 3 19	− 4	—	—	e 8·5	—
Sebastopol		14·8	89	e 4 47	?	i 9 48	?	—	—
Granada		15·0	238	3 37	+ 9	e 6 35	+20	—	—
Simferopol		15·1	87	e 3 40	+10	e 8 33	?	—	—
Yalta		15·2	89	e 3 44	+13	i 9 49	?	—	—
Theodosia		16·0	86	e 4 8	+27	e 9 26	?	—	—
Pulkovo		17·1	32	i 3 56	+ 1	e 7 19	SSSS	9·1	11·4
San Fernando		17·1	241	e 4 11	+16	i 7 19	SSSS	9·8	—
Moscow		18·2	50	e 4 7	− 2	e 7 37	+ 8	9·6	11·8
Ksara		21·7	118	i 4 45k	− 3	8 44	+ 4	10·5	—
Helwan		22·0	133	4 50	− 1	8 51	+ 5	—	—
Tiflis		23·5	90	5 5	0	9 23	+ 9	12·9	14·5
Grozny		23·6	85	e 5 11	+ 5	e 15 31	S_cS	—	—
Erevan		23·9	93	e 5 11	+ 2	—	—	—	—
Baku		27·6	89	e 5 41	− 3	e 10 26	+ 1	14·3	19·1
Sverdlovsk		31·0	52	i 6 25	+11	e 11 31	+11	16·9	18·4
Tashkent		40·4	76	e 7 46	+11	e 13 25	−17	e 18·9	26·3
Andijan		42·7	75	e 7 52	− 2	—	—	—	—
Tucson		86·3	315	i 12 38	− 2	—	—	e 46·8	—

Additional readings :—
Laibach i = +16s.
Zagreb i = +41s., iNE = +49s., iNEZ = +55s., i = +59s. and +1m.2s., iNWZ = +1m.6s., iNW = +1m.9s., iZ = +1m.11s., iNEZ = +1m.13s.
Ravensburg i = +40s., iP_g = +42s., i = +55s., iS_g = +1m.16s., i = +1m.27s.
Zurich eP_g = +48s.
Ebingen eP_g = +54s., iP_g = +57s.k, i = +1m.22s. and +1m.56s.
Stuttgart iP* = +52s., iP_g = +1m.0s., i = +1m.19s., iS* = +1m.35s., iS_g = +1m.45s.
Vienna P* = +57s., S* = +1m.44s., iS_g = +1m.56s.
Basle eP_g = +1m.1s.
Cheb e = +1m.10s. = P_g +0s.
Neuchatel i = +1m.4s. = P* +2s., i = +1m.19s.
Prague eP_g = +1m.8s., iPP = +1m.42s.
Strasbourg iP_g = +1m.9s., PP = +1m.14s. and +1m.21s., iPS = +1m.43s.

Continued on next page.

Budapest e = +1m.13s., eE = +1m.23s., P_gN = +1m.25s., P_gE = +1m.27s., e = +1m.43s., iN = +1m.49s., iE = +1m.55s., PPS = +2m.5s., PSE = +2m.15s., i = +2m.25s.
Jena i = +1m.13s., e = +1m.25s., e = +1m.34s., iN = +1m.38s.
Göttingen iP_gNZ = +1m.42s., eLN = +2m.24s., iS_gZ = +2m.50s., iS_gE = +2m.54s., iS_gN = +2m.58s.
Belgrade iP_gNW = +1m.43s., iNW = +1m.55s. and +2m.51s., iS_gNW = +2m.59s.
Marseilles iPN = +1m.43s., iPSE = +2m.28s., iSSN = +3m.6s., iN = +4m.47s.
Uccle iZ = +2m.34s., iS*E = +3m.35s.
Hamburg iSZ = +3m.32s, iEN = +4m.1s.
Lille iP_gN = +2m.43s., iSSN = +4m.26s., iSSE = +4m.39s., iE = +4m.57s.
Sofia eNW = +2m.31s., i = +4m.36s. = S_g +1s.
Bagnères i = +4m.12s., +4m.48s., and +5m.5s.
Copenhagen eN = +3m.45s., eE = +3m.58s.
Bucharest PPN = +3m.0s. and +3m.3s., SSN = +5m.19s.
Kew iPE = +2m.48s., iP*E = +2m.57s., iP*N = +3m.1s., iP* = +3m.13s., iP_gE = +3m.38s., iP = +4m.8s., iSEZ = +4m.53s., is*NZ = +5m.7s., iS*EN = +5m.29s., iS_gEN = +5m.39s., iEN = +5m.44s., iE = +5m.57s.
Jersey e = +2m.24s., +2m.27s.? and +3m.4s., iP_g = +3m.19s., i = +3m.36s., +3m.43s. and +4m.5s.
Tortosa ePE = +2m.18s.
Bidston iSS = +5m.26s.
Rathfarnham Castle i = +3m.47s., +4m.27s., +4m.51s., +4m.55s., and +6m.57s.
Ksara SS = +9m.7s.
Tiflis eSSE = +10m.27s.
Tashkent e = +16m.41s. = SSS − 4s.
Tucson e = +44m.54s.
Long waves were also recorded at Edinburgh, Vladivostok, Ivigtut, and Scoresby Sund.

Oct. 18d. 16h. Shock for which no determination can be made :—

Chiufeng ePZ = 30m.25s. and 32m.6s., eSZ = 34m.0s., S = 36m.0s., iL = 38m.48s., M = 40m.57s.
Tashkent e = 32m.49s., 37m.12s., 39m.55s., 42m.27s., 45m.22s., 46m.12s., 47m.43s., and 48m.49s., i = 49m.32s., iS = 50m.36s., M = 52m.18s.
Vladivostok e = 33m.4s., 36m.33s., and 37m.24s., L = 38m.6s., M = 38m.30s.
Nanking P = 35m.18s., eSE = 43m.13s., SS? = 44m.24s.
Semipalatinsk eP = 35m.38s.
Sverdlovsk iP = 36m.54s., i = 36m.58s. and 38m.17s., L = 49m.0s., M = 53m.36s.
Andijan eP = 37m.21s., e = 50m.0s.
Heizyo P? = 37m.22s.
Keizyo eP = 37m.55s., eS = 39m.48s., M = 40m.13s.
Zinsen eP = 37m.58s., eS = 39m.30s., M = 40m.16s.
Moscow e = 38m.11s., 39m.59s., and 45m.9s., L = 53m.18s., M = 61m.30s.
Tiflis ePZ = 38m.57s., eZ = 46m.27s., 51m.29s., 54m.26s., and 55m.21s., LE = 58m.12s., M = 63m.42s.
Ksara e = 40m.12s., 44m.6s., and 52m.16s.
Taikyu eP = 40m.49s., iE = 41m.15s., S = 42m.37s.
Tinemaha ePN = 41m.8s.
Santa Barbara iPZ = 41m.17s.
Pasadena iPZ = 41m.22s.
Mount Wilson iPZ = 41m.23s.
Husan eP = 41m.30s., eS = 43m.4s.
La Jolla iP = 41m.31s.
Tucson iP = 41m.49s., eL = 72m.0s.
Hukuoka B eP = 42m.30s., eS = 44m.24s.
Hong Kong P? = 43m.17s., S? = 47m.32s., SS? = 49m.32s., M = 55m.4s.
Frunse e = 43m.19s. and 48m.29s.
Calcutta eN = 44m.26s., iN = 52m.3s.
Agra eE = 44m.49s.
Pulkovo e = 45m.18s., L = 55m., M = 58m.42s.
Kodaikanal eE = 48m.0s.
Tchimkent e = 48m.33s. and 50m.10s.
Phu-Lien e = 50m.55s. and 54m.0s.
Baku eS = 52m.47s., eL = 57m., M = 59m.42s.
Cheb e = 55m., M = 65m.
Long waves were also recorded at Hyderabad, Grozny, Bozeman, Scoresby Sund, also at several European stations, which may belong either here or to the local shock recorded at 16h. 57m.

Oct. 18d. 21h. 49m. 40s. Epicentre 43°·8N. 11°·2E. (as on 1929 July 18d.). X.

A = +·7080, B = +·1402, C = +·6921 ; δ = −8 ;
D = +·194, E = −·981 ; G = +·679, H = +·134, K = −·722.

	△	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Padova	1·7	17	e 0 40	P_g	—	—	—
Chur	3·2	338	e 0 46	0	e 1 16	− 6	—
Zagreb	4·0	58	0 54	− 3	—	—	1·5
Zurich	4·0	332	e 0 57	0	e 1 42	0	—
Ravensburg	4·2	345	—	—	e 1 30	−18	—
Neuchatel	4·4	318	e 1 10	P*	e 2 11	S*	—
Basle	4·5	328	e 1 6	+ 2	e 2 10	S*	—
Stuttgart	5·2	345	e 1 15	+ 1	e 1 45	S_g	—
Strasbourg	5·3	334	e 1 35	P_g	i 2 15	0	—
Vienna	5·7	37	—	—	e 2 20?	− 5	—
Göttingen	7·8	355	—	—	e 3 20?	+ 1	3·4

Additional readings :—
Zagreb i = +58s.
Zurich eP_g = +1m.3s.
Neuchatel iP_g = +2m.20s.
Stuttgart eS_g = +2m.1s.

Oct. 18d Readings also at 0h. (Erevan, near Tiflis, near Batavia, near Mizusawa, and Nagoya), 1h. (near Batavia and Malabar), 2h. (Tucson and near Santiago), 5h. (Santiago and near Nagoya), 6h. (Riverview), 7h. (Hastings), 9h. (Berkeley, Branner, Fresno, near Christchurch, New Plymouth, and Wellington), 11h. (Mount Wilson and Pasadena), 16h. (Medan, Simferopol, Theodosia, Yalta, Bucharest, Strasbourg, Stuttgart, Basle, near Chur, Zurich, and near Mizusawa), 19h. (near Nagoya and near Santiago), 20h. (Ksara), 22h. (near Chur), 23h. (Medan).

Oct. 19d. 7h. 5m. 54s. Epicentre 45°·0N. 12°·5E. N.3.

Very rough.

A = +·6903, B = +·1530, C = +·7071 ; δ = −9 ;
D = +·216, E = −·976 ; G = +·690, H = +·153, K = −·707.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Padova		0·6	312	i 0 19	+10	0 29	+14	—	—
Florence		1·5	216	0 36	S	(0 36)	− 3	—	1·5
Laibach		1·8	53	i 0 30	P_g	i 0 49	+ 3	—	0·8
Zagreb		2·6	72	i 0 43	P*	i 1 10	+ 3	—	1·5
Chur		2·8	312	e 0 38	− 2	e 1 6	− 6	—	—
Graz		2·9	45	e 0 40	− 1	e 1 6	− 8	—	1·3
Ravensburg		3·4	326	e 0 46	− 3	i 1 24	− 3	—	—
Zurich		3·6	313	e 0 49	− 2	e 1 34	+ 2	—	—
Ebingen		4·0	323	e 0 53	− 4	i 1 41	− 1	—	—
Basle		4·2	308	e 0 57	− 3	e 1 43	− 5	—	—
Vienna		4·2	38	e 1 1	+ 1	e 1 53	+ 5	—	—
Neuchatel		4·3	299	e 1 2	+ 1	e 2 3	S*	—	—
Stuttgart		4·4	330	e 0 57	− 6	e 1 43	−10	—	i 2·3
Strasbourg		4·8	319	e 1 11	+ 3	i 2 9	+ 6	—	—
Cheb		5·1	357	e 1 22	P*	e 1 48	−22	—	2·9
Prague		5·2	12	e 1 58	P_g	e 2 12	− 1	—	4·6
Belgrade		5·6	89	e 2 57	S_g	—	—	—	—
Jena		5·9	355	i 1 36	P*	i 2 6	−25	i 2·3	2·7
Göttingen		6·5	347	i 1 26	− 6	i 3 3	S*	—	3·2
Paris		7·8	303	—	—	e 3 46	S*	—	—
Uccle	z.	7·9	320	e 2 17	P*	—	—	—	—
Hamburg		8·7	351	—	—	e 4 12	S*	—	—
Kew		10·7	312	—	—	e 5 6?	S*	—	—

For Notes see next page.

NOTES TO OCT. 19d. 7h. 5m. 54s.

Additional readings :—
Zagreb i = +48s., iNE = +1m.1s. and +1m.14s., iNW = +1m.20s., iNE = +1m.25s.
Ravensburg e = +1m.22s., i = +1m.26s.
Zurich e = +50s., eP_g = +56s.
Ebingen eP_gZ = +1m.0s., e = +1m.29s., i = +1m.44s.
Basle eP = +1m.8s., e = +1m.57s.
Neuchatel eP_g = +1m.12s.
Stuttgart iP_g = +1m.7s., eS = +1m.36s., iS_g = +1m.53s., i = +1m.56s.
Belgrade iNW = +3m.14s. and +3m.56s., iZ = +4m.23s.
Jena eNZ = +1m.12s., iN = +2m.14s.
Göttingen iP_gN = +1m.50s., eN = +2m.26s. and +2m.38s.
Long waves were also recorded at Ivigtut, Sverdlovsk, Scoresby Sund, Copenhagen, and De Bilt.

Oct. 19d. 12h. 4m. 25s. Epicentre 2°·0S. 126°·0E. N.1.

A = −·5874, B = +·8085, C = −·0349 ; δ = −7 ;
D = +·809, E = +·588 ; G = +·021, H = −·028, K = −·999.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		2·8	128	i 0 4	−36	i 0 41	−31	—	—
Palau		12·6	42	2 56	0	5 35	+18	—	—
Manila		17·3	344	i 3 58k	0	7 16	+ 7	—	—
Malabar		19·0	255	i 4 24	+ 5	i 8 10	SSSS	—	—
Batavia		19·6	258	i 4 28	+ 3	i 8 19	SSS	—	—
Soengei Langka		21·0	261	i 4 45	+ 5	i 8 39	+13	—	—
Kosyun		24·6	348	5 15	− 1	9 36	+ 2	—	—
Taito		25·3	350	5 27	+ 4	—	—	—	—
Tainan		25·6	348	5 32	+ 7	—	—	—	—
Arisan		26·0	349	5 31	+ 2	9 58	0	—	—
Karenko		26·3	350	5 13	−19	—	—	—	—
Isigakizima		26·4	356	5 33	0	10 6	+ 1	—	—
Taityu		26·7	349	5 43	+ 8	—	—	—	—
Hong Kong		26·9	335	5 37a	0	10 24	+10	—	16·6
Giran		27·1	351	5 48	+ 9	10 29	+12	—	—
Taihoku		27·4	351	e 5 46	+ 4	e 10 16	− 6	—	—
Medan		27·9	282	5 51	+ 5	i 10 36	+ 6	—	—
Phu-Lien		29·6	321	e 6 4	+ 3	e 11 5	+ 7	—	—
Perth		31·5	198	6 15	− 3	11 10	−18	16·1	—
Titizima		33·0	27	6 33	+ 1	—	—	—	—
Zi-ka-wei	z.	33·5	353	e 6 33	− 3	12 9	+11	17·0	20·2
Miyazaki		34·3	8	6 44	+ 1	12 7	− 4	—	—
Nanking		34·7	348	i 6 48k	+ 2	i 12 16	− 1	17·9	—
Tomie		34·7	4	6 55	+ 9	—	—	—	—
Nagasaki		34·9	5	6 49	+ 1	11 48	−32	—	—
Adelaide		35·0	163	i 6 43	− 6	i 12 13	− 8	16·9	21·7
Hukuoka B		35·8	5	e 6 59	+ 3	e 12 23	−10	—	—
Koti		36·3	10	6 57	− 3	12 36	− 5	—	—
Matuyama		36·4	9	7 0	− 1	12 39	− 3	—	—
Siomisaki		36·6	13	6 48	−15	—	—	—	—
Husan		37·2	3	(e 7 9)	+ 1	e 7 9	P	—	—
Wakayama		37·2	12	7 6	− 2	—	—	—	—
Sumoto		37·3	12	7 7	− 2	e 12 50	− 6	—	—
Kobe		37·7	12	e 7 11	− 1	e 12 55	− 7	—	22·0
Osaka		37·7	12	7 8	− 4	13 0	− 2	—	—
Osaka B		37·7	12	7 1	−11	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taikyu		37·9	3	7 15	+ 1	13 5	0	19·4	—
Kameyama		38·1	14	7 15	− 1	13 2	− 6	—	—
Kyoto		38·1	13	7 15	− 1	—	—	—	—
Toyooka		38·4	12	7 18	0	13 8	− 4	—	—
Hikone		38·5	13	7 19	0	13 11	− 3	—	—
Nagoya		38·6	14	7 19	− 1	13 11	− 4	—	—
Gihu		38·7	14	7 21	0	13 9	− 8	—	—
Hamamatu		38·7	16	7 17	− 4	13 6	−11	—	—
Misima		39·0	17	7 22	− 2	—	—	—	—
Numadu		39·0	17	7 39	+15	—	—	—	—
Hunatu		39·4	17	7 25	− 2	—	—	—	—
Kohu		39·4	17	7 26	− 1	13 23	− 4	—	—
Zinsen	N.	39·5	0	i 7 31	+ 3	e 12 59	−30	—	—
Keizyo		39·6	1	i 7 28	− 1	e 13 28	− 2	—	—
Riverview		39·6	147	i 7 30k	+ 1	i 13 29	− 1	e 21·0	22·7
Sydney		39·6	147	e 4 53	?	13 35	+ 5	25·0	26·4
Kanazawa		39·8	13	8 21	+51	14 23	+50	—	—
Melbourne		39·8	157	7 28	− 2	13 35	+ 2	21·6	22·8
Tokyo		39·8	18	7 30	0	13 28	− 5	—	—
Husiki		40·1	13	7 8	−25	—	—	—	—
Oiwake		40·1	16	7 31	− 2	13 32	− 6	—	—
Toyama		40·1	13	7 30	− 3	13 34	− 4	—	—
Kumagaya		40·2	17	7 30	− 4	—	—	—	—
Maebasi		40·3	16	8 33	+58	—	—	—	—
Nagano		40·3	15	7 34	− 1	13 38	− 3	—	—
Kakioka		40·5	16	7 30	− 6	13 33	−11	—	—
Takada		40·7	15	8 8	+30	—	—	—	—
Wazima		40·7	13	7 36	− 2	13 43	− 4	—	—
Aidu		41·7	16	8 30	+44	15 20	+78	—	—
Niigata		41·7	15	8 0	+14	—	—	—	—
Hukusima		42·0	16	7 47	− 2	14 1	− 5	—	—
Yamagata		42·4	16	7 53	+ 1	—	—	—	—
Sendai		42·6	16	7 53	0	14 11	− 4	—	—
Isinomaki		42·8	16	7 52	− 3	—	—	—	—
Mizusawa		43·4	17	i 8 1	+ 1	i 14 26	− 1	—	—
Akita		43·7	16	7 52	−10	—	—	—	—
Morioka		44·0	17	8 4	− 1	14 34	− 2	—	—
Calcutta	N.	44·2	305	8 11	+ 5	—	—	—	—
Hatinohe		44·8	17	8 9	− 2	—	—	—	—
Aomori		44·9	15	8 10	− 2	14 46	− 3	—	—
Vladivostok		45·4	7	i 8 13	− 3	i 14 52	− 4	23·3	34·5
Hakodate		45·8	15	8 23	+ 4	—	—	—	—
Colombo		46·9	281	8 29	+ 1	15 26	+ 9	27·9	31·7
Sapporo		47·1	15	8 30	+ 1	—	—	—	—
Obihiro		47·5	17	8 28	− 4	14 38	−48	—	—
Haboro		48·5	15	8 11	−29	—	—	—	—
Nemuro		48·6	19	8 55	+14	15 53	+12	—	—
Kodaikanal	E.	49·8	286	i 8 50	0	i 16 0	+ 2	i 24·0	32·5
Hyderabad		50·7	294	8 53	− 4	16 11	0	23·6	34·6
Agra	E.	54·6	306	9 22	− 4	i 17 3	− 1	26·4	—
Dehra Dun		55·9	309	9 55	+20	17 45	+24	25·7	35·6
Bombay		56·3	294	9 35	− 3	i 17 20	− 7	25·6	—
Arapuni		57·9	135	—	—	i 22 5	SS	30·1	33·1
Wellington		58·1	139	9 51	0	17 57	+ 6	26·6	32·6
Christchurch		58·6	141	e 9 50a	− 5	i 18 3	+ 6	28·2	33·2
Almata		63·1	322	e 10 26	0	—	—	—	—
Andijan		63·5	317	e 10 36	+ 7	19 19	+18	35·3	—
Frunse		64·3	321	e 10 21	−13	19 2	− 9	—	—
Semipalatinsk		65·3	331	e 10 38	− 3	—	—	—	—
Tashkent		67·1	317	i 10 49	− 3	i 19 47	+ 1	29·2	44·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M
		°	°	m. s.	s.	m. s.	s.	m.	m
Tchimkent		67·3	318	e 10 53	− 1	19 49	+ 1	—	—
Samarkand		68·1	314	e 10 56	− 3	20 1	+ 3	—	—
Honolulu		77·9	68	e 20 7	?	e 21 50	− 3	34·7	—
Sverdlovsk		78·5	330	i 12 10	+10	i 22 1	+ 2	35·6	48·8
Baku		80·8	312	i 12 18	+ 6	i 22 22	− 2	37·6	50·2
Grozny		83·0	314	e 12 30	+ 7	22 54	+ 7	—	—
Erevan		84·8	310	12 39	+ 7	e 23 9	+ 3	—	—
Tiflis		84·8	312	e 12 29	− 3	i 22 58	[0]	e 38·1	59·6
Piatigorsk		86·3	314	12 39	− 1	e 23 8	[0]	—	—
Sotchi		88·7	314	—	—	e 23 35	− 9	—	—
College		90·2	25	e 16 41	PP	e 23 17	[−17]	—	—
Moscow		90·8	326	e 13 5	+ 4	23 33	[− 4]	43·6	58·2
Ksara		91·2	304	i 13 7a	+ 4	e 24 13	+ 6	43·6	49·6
Theodosia		91·9	316	—	—	e 23 38	[− 6]	—	—
Yalta		92·7	315	e 16 48	PP	e 24 7	−14	—	—
Simferopol		92·8	315	—	—	e 24 12	−10	—	—
Sebastopol		93·2	315	e 18 17	PPP	e 24 46	+20	—	—
Helwan		95·0	300	13 23	+ 3	23 55	[− 6]	—	60·9
Pulkovo		95·0	330	e 13 3	−17	23 50	[−11]	52·6	56·9
Sitka		96·4	33	e 16 40	PP	e 24 1	[− 7]	—	—
Bucharest		98·5	315	17 35	PP	24 16	[− 2]	—	—
Upsala		100·9	331	e 17 52	PP	i 24 22	[− 8]	e 46·6	60·4
Belgrade		102·4	315	e 18 15	PP	i 24 35	[− 2]	e 42·6	—
Cape Town		103·3	236	e 17 45	PP	i 24 55	[+13]	e 49·2	58·4
Copenhagen		104·7	328	18 30	PP	24 46	[− 2]	49·6	—
Prague		105·2	322	e 18 5?	[+ 3]	e 24 47	[− 4]	e 48·6	62·1
Vienna		105·2	320	e 14 6	− 2	24 42	[− 9]	e 59·6	—
Zagreb		105·3	317	e 18 23	[+21]	e 24 49	[− 2]	e 52·6	—
Cheb		106·5	322	e 17 35?	[−31]	i 24 53	[− 4]	e 58·6	62·6
Hamburg		106·8	327	e 18 35	PP	e 24 41	[−17]	e 52·6	63·6
Ukiah		107·3	50	—	—	e 33 59	SS	—	—
Göttingen		107·5	324	i 18 51k	PP	—	—	e 57·6	64·6
Padova		108·2	318	e 18 35	PP	—	—	—	—
Berkeley	E.	108·3	51	—	—	e 25 1	[− 4]	—	—
Scoresby Sund		108·4	349	i 18 59	PP	24 57	[− 9]	52·6	—
Stuttgart		108·9	322	e 14 23	− 3	e 25 3	[− 5]	e 53·6	—
Strasbourg		109·8	322	e 19 12	PP	e 28 27	PS	e 45·6	—
De Bilt		110·0	326	i 19 12	PP	i 25 12	[− 1]	e 49·6	67·0
Uccle		111·0	325	e 19 18	PP	—	—	e 51·6	—
Pasadena		112·4	54	e 14 49	+ 7	e 27 5	{+41}	e 39·9	—
Mount Wilson	z.	112·6	54	e 14 47	+ 4	—	—	—	—
Paris		112·9	324	i 19 27k	PP	e 28 56	?	57·6	66·6
Kew		113·3	327	i 19 35a	PP	i 29 10	SP?	e 57·6	73·2
Bozeman		113·9	40	e 15 53	+63	e 26 41	{+ 7}	—	—
Algiers		117·2	311	e 19 53	PP	e 33 5	?	55·6	—
Tucson		118·7	54	e 18 47	[+ 5]	e 27 19	{+11}	e 50·8	—
Almeria		121·2	313	e 20 3	PP	—	—	—	—
Granada		121·9	314	i 20 19	PP	i 31 37	?	—	—
San Fernando		124·1	314	e 20 42	PP	e 37 42	SS	64·6	—
Chicago		130·1	33	e 18 35	[−32]	—	—	—	—
Florissant		130·5	38	i 22 11	PKS	—	—	e 66·2	—
Little Rock		131·6	44	e 22 36	PKS	—	—	—	—
Ottawa		132·6	21	e 22 41	PKS	e 28 35?	{− 3}	e 48·6	—
Toronto		132·6	25	i 22 42	PKS	i 28 30	{− 8}	56·6	—
Philadelphia		137·5	24	i 22 55	PKS	e 40 3	SS	e 60·8	—
Columbia		139·2	35	e 23 5	PKS	e 40 35	SS	—	—
Dakar		141·7	292	e 15 8	?	—	—	—	—
Rio de Janeiro		153·0	204	e 19 53	[+ 7]	—	—	e 43·1	—
Huancayo		154·6	125	19 52	[+ 4]	38 26	?	65·1	—
La Paz		156·8	144	20 5	[+15]	—	—	76·6	97·9
San Juan		159·8	35	e 20 40	{− 3}	—	—	e 74·6	—

For Notes see next page.

NOTES TO OCT. 19d. 12h. 4m. 25s.

Additional readings :—
Hong Kong PP = +6m.24s., SS = +12m.6s.
Perth PP = +7m.14s., SS = +12m.50s., ? = +13m.5s. =SS +0s., +13m.35s., and +14m.35s.
Zi-ka-wei iZ = +6m.45s., PPZ = +7m.39s., SSZ = +14m.17s.
Adelaide i = +6m.52s. and +7m.34s., iPP = +7m.59s., L = +9m.14s. and +13m.5s., iSS = +14m.7s., i = +14m.46s. =SSS +3s., and +15m.39s.
Sumoto e = +8m.35s. =PP +6s.
Kobe eSE = +12m.58s.
Taikyu PP = +8m.49s.
Toyooka PE = +7m.21s.
Keizyo ePPN = +8m.58s.
Riverview iEN = +8m.57s. =PP +2s.
Sydney PP = +9m.3s., SS = +18m.20s., SSS = +21m.15s.
Melbourne PPP = +9m.2s.
Mizusawa isE = +14m.29s.
Calcutta iN = +11m.50s.
Kodaikanal iPPE = +10m.41s., iSSE = +19m.25s., iSSSE = +20m.37s.
Agra PSE = +17m.37s., SSE = +20m.49s., SSSE = +22m.23s.
Bombay PSEN = +17m.50s., S_cSE = +19m.24s.
Wellington SS = +22m.23s., SSS = +24m.4s.
Honolulu eS = +23m.11s.
Tiflis iP = +12m.35s., eZ = +23m.40s.
College e = +22m.41s., eSS = +30m.5s.
Moscow PP = +16m.41s., PPP = +18m.58s., PPS = +25m.26s., SS = +30m.11s.
Ksara PP = +16m.45s., ePS = +25m.13s., eSS = +30m.33s.
Theodosia i = +24m.13s.
Helwan e = +17m.10s.
Pulkovo PP = +17m.14s., S_cS = +24m.38s., PS = +25m.35s., L_q = +47·6m.
Sitka S = +24m.49s.
Bucharest eEN = +20m.41s., PSEN = +24m.59s.
Belgrade eNW = +32m.57s.
Cape Town iPS?N = +25m.52s., iPPSN = +27m.15s., iPPSE = +27m.18s., eSSS?E = +36m.27s.
Copenhagen PS = +27m.38s., PPS = +28m.43s., SSN = +33m.23s.
Prague e = +33m.35s. and +40m.23s. =SSSS +9s.
Vienna PP = +18m.32s., PPS = +29m.3s.
Zagreb eNE = +18m.39s.
Hamburg eE = +34m.11s.
Berkeley eN = +25m.11s., eN = +26m.26s., eE = +28m.11s.
Scoresby Sund PPP = +21m.9s., PS = +28m.17s., SS = +34m.23s.
Dakar iSKSP = +30m.35s., ePPS = +31m.30s., eSS = +37m.35s.
Stuttgart ePP = +18m.57s., eS = +26m.49s., ePS = +28m.15s., ePPS = +29m.29s., eSS = +33m.59s.
Strasbourg e = +29m.35s.?
De Bilt iZ = +28m.36s. =PS +8s.
Pasadena iPPZ? = +18m.35s., iPKSZ? = +19m.6s.
Mount Wilson eZ = +18m.31s., iZ = +19m.7s. =PP −9s., eZ = +29m.38s.
Bozeman ePS = +28m.53s.
Tucson PP = +20m.2s., ePS = +29m.40s., PS = +29m.50s., eSS = +36m.11s., SSS = +39m.55s.
Chicago eSKP = +22m.35s.
Florissant iN = +22m.37s., eE = +22m.40s. =PKS +4s., eN = +23m.6s., iN = +23m.11s.
Little Rock iE = +22m.38s., iEN = +22m.49s., eEN = +23m.22s.
Ottawa eN = +34m.35s.? eE = +39m.35s.
Toronto e = +31m.45s. =PS −9s.
Philadelphia ePPP = +25m.16s., ePPS = +34m.7s., e = +54m.43s.
Columbia ePPS = +34m.14s., e = +44m.5s.
Rio de Janeiro eE = +20m.3s.
Huancayo PKP_2 = +20m.16s., e = +25m.25s., S = +40m.24s., SSS = +51m.33s., e = +53m.36s.
La Paz PKP_2 = +20m.49s., PPN = +25m.13s., SS = +44m.35s.
San Juan ePP = +24m.24s., ePPS = +37m.7s.
Long waves were also recorded at Oak Ridge, Edinburgh, Stonyhurst, Bergen, Florence, Bidston, Durham, Madison, Ivigtut, Jena, and Rathfarnham Castle.

Oct. 19d. 19h. 56m. 1s. Epicentre 36°·5N. 135°·8E. N.1.
(as given by Japanese stations).

A = −·5763, B = +·5604, C = +·5948 ; δ = −4 ;
D = +·697, E = +·717 ; G = −·426, H = +·415, K = −·804.

The stations give focal depth 350k.m. and a correction for depth 0·060 has been applied.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hukui	+2·3	0·6	140	0 33	− 8	1 11	− 3	—	—
Kanazawa	+2·3	0·6	87	0 48	+ 7	1 25	S*	—	—
Husiki	+2·2	1·0	74	0 47	+ 1	1 26	+ 4	—	—
Miyadu	+2·1	1·1	207	0 48k	+ 2	1 28	+ 6	—	—
Toyama	+2·1	1·1	81	0 48	+ 2	1 28	+ 6	—	—
Ibukisan	+2·1	1·2	157	0 48	+ 1	1 28	+ 3	—	—
Takayama	+2·1	1·2	107	0 49	+ 2	—	—	—	—
Wazima	+2·1	1·2	45	0 47k	0	1 26	+ 1	—	—
Hikone	+2·1	1·3	164	0 49k	0	1 30	+ 3	—	—
Toyooka	+2·1	1·3	219	0 46k	− 3	1 26	− 1	—	1·5
Gihu	+2·0	1·4	145	0 50k	+ 1	1 31	+ 4	—	—
Kyoto	+2·0	1·5	182	0 51a	+ 1	1 31	+ 1	—	—
Nagoya	+1·9	1·7	145	0 52	+ 1	1 34	+ 2	—	1·6
Kameyama	+1·8	1·8	162	0 53k	+ 2	1 36	+ 4	—	—
Iida	+1·8	1·9	121	0 55k	+ 2	1 40	+ 5	—	—
Kobe	+1·8	1·9	195	e 0 51	− 2	i 1 35	0	—	1·6
Nagano	+1·8	1·9	85	0 54k	+ 1	1 39	+ 4	—	—
Osaka	+1·8	1·9	187	0 54	+ 1	1 37	+ 2	—	—
Osaka B	+1·8	1·9	187	0 55a	+ 2	1 29	− 6	—	—
Tu	+1·8	1·9	162	0 52	− 1	1 37	+ 2	—	—
Takada	+1·8	2·0	73	0 54k	0	1 31	− 6	—	—
Yagi	+1·8	2·0	180	0 54	0	1 36	− 1	—	—
Oiwake	+1·7	2·2	94	0 55k	− 1	1 42	+ 2	—	—
Sakai	+1·6	2·3	245	0 54k	− 2	1 36	− 4	—	—
Sumoto	+1·6	2·3	199	0 54a	− 2	1 39	− 1	—	1·7
Wakayama	+1·6	2·3	193	0 56a	0	1 40	0	—	—
Hamamatu	+1·6	2·4	139	1 0	+ 3	1 47	+ 5	—	—
Kohu	+1·6	2·4	111	0 58	+ 1	—	—	—	—
Hunatu	+1·5	2·6	113	1 0	+ 2	1 49	+ 4	—	—
Omaesaki	+1·5	2·7	134	1 2k	+ 2	1 53	+ 5	—	—
Tokusima	+1·5	2·7	202	0 58k	− 2	1 46	− 2	—	—
Kumagaya	+1·4	2·9	97	1 1a	0	1 49	− 1	—	—
Misima	+1·4	2·9	118	1 2	+ 1	1 57	+ 7	—	—
Ito	+1·3	3·1	120	1 4	+ 1	2 0	+ 7	—	—
Siomisaki	+1·3	3·1	181	1 3a	0	1 55	+ 2	—	—
Utunomiya	+1·3	3·2	89	1 5	+ 1	1 59	+ 4	—	—
Tokyo	+1·2	3·3	104	1 6	+ 2	2 0	+ 5	—	—
Yokohama	+1·2	3·3	109	1 8	+ 4	1 56	+ 1	—	—
Kakioka	+1·1	3·5	93	1 3k	− 3	1 56	− 2	—	—
Koti	+1·1	3·5	213	1 5a	− 1	1 57	− 1	—	—
Tukubasan	+1·1	3·5	93	1 5k	− 1	1 58	0	—	—
Aidu	+1·1	3·6	71	1 21a	+14	2 56	+56	—	—
Muroto	+1·1	3·6	203	1 6	− 1	2 1	+ 1	—	—
Matuyama	+1·0	3·7	224	1 6a	− 1	1 58	− 2	—	—
Mera	+1·0	3·7	115	1 12	+ 5	2 6	+ 6	—	—
Mito	+1·0	3·8	94	1 9k	− 1	2 4	+ 1	—	—
Hukusima	+1·0	3·9	71	1 9k	− 1	—	—	—	—
Yamagata	+0·9	4·0	63	1 10	0	—	—	—	—
Onahama	+0·9	4·1	81	1 19k	P*	2 17	+ 9	—	—
Tyosi	+0·8	4·2	100	1 13	+ 2	2 12	+ 4	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Sendai		+0·8	4·4	63	1 14k	0	—	—	—	—
Isinomaki		+0·6	4·8	65	1 7	− 7	—	—	—	—
Mizusawa		+0·5	4·9	57	i 1 20	+ 3	2 23	+ 5	—	—
Morioka		+0·5	5·2	51	1 21k	0	2 23	− 2	—	—
Hukuoka		+0·4	5·3	238	1 19	− 2	2 24	− 1	—	2·5
Hukuoka B		+0·4	5·3	238	i 1 21	0	i 2 22	− 3	—	2·5
Kumamoto		+0·4	5·6	230	1 26	+ 1	2 36	+ 3	—	—
Aomori		+0·3	5·8	40	1 26k	− 1	2 33	− 3	—	—
Miyako		+0·3	5·8	55	1 23	− 4	2 31	− 5	—	—
Miyazaki		+0·3	5·8	220	1 26a	− 1	2 43	+ 7	—	—
Taikyu	E.	+0·3	5·8	266	1 24	− 3	2 34	− 2	—	—
Hatinohe		+0·3	6·0	46	1 29	− 1	2 37	− 4	—	—
Nagasaki		+0·2	6·2	234	1 32k	+ 1	2 47	+ 4	—	—
Hakodate		+0·2	6·4	34	1 49	P*	3 5	S*	—	—
Tomie		0·0	7·1	237	1 41a	0	3 4	+ 3	—	—
Keizyo		0·0	7·1	281	i 1 38k	− 3	i 2 55	− 6	—	3·0
Vladivostok		0·0	7·2	337	i 1 35	− 7	i 3 0	− 4	3·8	—
Zinsen		−0·1	7·4	281	i 1 40k	− 4	i 3 3	− 3	—	—
Sapporo		−0·2	7·8	31	1 49k	+ 1	3 14	0	—	—
Urakawa		−0·2	7·8	41	1 29	−19	2 54	−20	—	—
Obihiro		−0·3	8·5	39	1 52	− 4	3 21	− 8	—	—
Asahigawa		−0·4	8·8	32	2 6	+ 7	3 40	+ 6	—	—
Nemuro		−0·7	10·1	44	2 9	− 4	4 1	+ 2	—	—
Nanking		−1·5	14·7	258	i 3 2	− 3	—	—	—	—
Frunse		−5·2	46·5	298	e 7 43	0	e 14 3	+ 7	—	—
Tashkent		−5·5	50·7	297	i 8 17	+ 3	i 15 2	+ 8	—	—
Sverdlovsk		−5·7	52·3	318	i 8 43	+18	i 15 37	+24	—	—
Samarkand		−5·7	52·9	296	e 8 34	+ 4	e 15 29	+ 8	—	—
Mount Wilson	z.	−7·3	81·4	54	i 11 38	+ 3	—	—	—	—
Pasadena	z.	−7·3	81·4	54	i 11 38	+ 3	—	—	—	—

Pasadena gives also iZ = +13m.0s.

Oct. 19d. Readings also at 4h. (Fresno, near Wellington, and near Andijan), 5h. (near Balboa Heights), 6h. (Tiflis, Ksara, Copenhagen, Hamburg, De Bilt, Uccle, Paris, Strasbourg, Stuttgart, Kew, Stonyhurst, Jersey, Florence, Granada, Scoresby Sund, Ivigtut, Mount Wilson, Pasadena, and Riverside), 7h. (Medan, Tashkent, Copenhagen, Paris (2), Stuttgart, Tiflis, Granada, Scoresby Sund, Ivigtut, Mount Wilson, Pasadena, Riverside, and Tucson (2)), 8h. (Tashkent, De Bilt, Jersey, and near Belgrade), 9h. (Sverdlovsk and Tiflis), 11h. (near Santiago), 13h. (Batavia, Frunse, and Andijan), 14h. (Branner and La Paz), 17h. (Almeria, Andijan, Samarkand, and Frunse), 19h. (near Medan and near Nagoya), 20h. (Sverdlovsk, Tiflis, and near Tananarive).

Oct. 20d. 12h. 47m. 26s. Epicentre 13°·5N. 52°·0E. (as on 1931 June 23d.). X.

A = +·5987, B = +·7662, C = +·2334 ; δ = −2 ;
D = +·788, E = −·616 ; G = +·144, H = +·184, K = −·972.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Ksara	25·1	327	i 5 18	− 3	e 9 55	+12	—	—
Helwan	25·2	314	e 5 19	− 3	9 54	+10	—	16·4
Baku	27·0	357	e 5 40	+ 2	e 10 22	+ 7	15·6	20·4
Tiflis	28·9	348	e 6 2	+ 7	e 10 41	− 6	16·6	19·3
Tashkent	31·6	26	—	—	e 11 19	−10	e 17·3	22·8
Sverdlovsk	43·9	6	—	—	e 14 44	+10	22·1	—

Additional readings :—
Ksara S_cS = +16m.14s.
Tiflis eN = +11m.5s.
Tashkent e = +14m.40s.

Oct. 20d. 14h. 23m. 46s. Epicentre 35°·0N. 138°·2E. R.1.
(as given by Japanese stations).

$A = -\cdot6107$, $B = +\cdot5460$, $C = +\cdot5736$; $\delta = +9$;
$D = +\cdot667$, $E = +\cdot745$; $G = -\cdot428$, $H = +\cdot382$, $K = -\cdot819$.

	△	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Omaesaki	0·4	178	0 4k	− 2	0 10	0	—
Hamamatu	0·5	234	0 5k	− 2	0 13	0	—
Numadu	0·5	79	0 3k	− 4	0 11	− 2	—
Iida	0·6	330	0 8k	− 1	0 16	+ 1	—
Misima	0·6	79	0 6k	− 3	0 15	0	—
Hunatu	0·7	43	0 9k	− 1	0 20	+ 2	—
Ito	0·7	93	0 9a	− 1	0 19	+ 1	—
Kohu	0·7	25	0 9k	− 1	0 28	+10	—
Nagoya	1·0	279	i 0 15a	+ 1	i 0 29	+ 3	0·6
Gihu	1·2	289	0 16	− 1	0 34	S*	—
Kamakura	1·2	74	1 13	+56	e 1 28	+57	—
Matumoto	1·2	351	0 15k	− 2	0 33	+ 2	—
Yokohama	1·2	70	0 18k	+ 1	0 37	+ 6	—
Mera	1·3	94	0 21	P_g	0 36	+ 3	—
Mitaka	1·3	59	0 19	+ 1	0 37	+ 4	—
Oiwake	1·3	12	0 20k	P_g	0 40	+ 7	—
Kameyama	1·4	264	0 21k	P*	0 41	S*	—
Takayama	1·4	326	0 20	0	0 40	S*	—
Tokyo	1·4	61	0 21a	P*	0 41	S*	—
Tokyo I.U.	1·4	61	0 22	P_g	0 42	+ 6	—
Ibukisan	1·5	284	0 22	+ 1	0 44	S*	—
Kumagaya	1·5	40	0 23k	P*	0 43	S*	—
Maebasi	1·5	27	0 24k	P_g	0 44	S*	—
Tu	1·5	259	0 21	0	0 39	0	—
Hikone	1·6	279	0 25k	P_g	0 46	S*	—
Nagano	1·6	0	0 25k	P_g	0 48	S_g	—
Katuura	1·7	85	0 28	P_g	0 54	+10	—
Kiyosumi	1·7	85	0 22	− 2	0 45	+ 1	—
Toyama	1·9	334	0 28	0	0 57	S_g	—
Tukubasan	1·9	52	0 29k	P*	0 55	S*	—
Husiki	2·0	332	0 30	+ 1	1 0	S_g	—
Kakioka	2·0	53	0 30	+ 1	0 57	S*	—
Kanazawa	2·0	321	0 37	+ 8	1 5	+14	—
Kyoto	2·0	270	0 28	− 1	0 58	S*	—
Utunomiya	2·0	41	0 30	+ 1	0 57	S*	—
Yagi	2·0	256	0 31	P*	0 55	S*	—
Takada	2·1	1	0 40	+10	1 6	S_g	—
Osaka	2·2	261	0 31	0	1 5	S*	—
Osaka B	2·2	261	0 33	P*	1 2	S*	—
Mito	2·3	53	0 36	P*	1 6	S*	—
Tyosi	2·3	71	0 37k	P*	0 58	− 1	—
Kobe	2·5	263	e 0 35	− 1	i 1 15	S_g	1·3
Miyadu	2·5	282	0 33	− 3	1 14	S*	—
Siomisaki	2·6	232	0 36	− 1	1 12	+ 5	—
Wakayama	2·6	253	0 36a	− 1	1 7	0	—
Wazima	2·6	336	0 43	P*	1 17	S*	—
Onahama	2·8	48	0 39a	− 1	1 17	+ 5	—
Sumoto	2·8	257	0 44	P*	1 22	S*	1·6
Toyooka	2·8	281	0 40k	0	1 22	S*	1·4
Niigata	3·0	13	1 1	+18	1 49	+32	—
Tokusima	3·1	253	0 56	P_g	1 30	S*	—
Hukusima	3·3	34	0 53	P*	—	—	—
Okayama	3·5	263	0 52	+ 2	1 46	S_g	—
Tadotu	3·7	258	0 52	− 1	1 29	− 6	—
Yamagata	3·7	28	0 39	−14	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Muroto		3·8	241	1 3	P*	1 43	+ 6	—
Sendai		3·9	33	1 3	P*	1 48	+ 8	—
Koti		4·1	250	1 5	P*	1 54	+ 9	—
Sakai		4·1	280	1 12	P_g	2 8	S_g	—
Matuyama		4·7	255	1 13	P*	2 24	S_g	—
Mizusawa	E.	4·7	29	1 14	P*	2 17	S*	—
Hirosima		4·8	262	1 6	− 2	2 4	+ 1	—
Ooita		5·7	254	1 34	P*	—	—	—
Hukuoka B		6·6	258	c 1 49	P*	3 30	S_g	—
Kumamoto		6·6	253	1 46	P*	—	—	—
Nagasaki		7·3	253	2 20	P_g	—	—	—
Taikyu		7·8	279	c 4 7	S_g	—	—	—

Additional reading :—
Toyooka i = +47s.

Oct. 20d. 22h. 10m. 18s. Epicentre 38°·3N. 72°·8E. (as on 1935 July 22d.). R.3.

A = +·2321, B = +·7497, C = +·6198 ; δ = +7 ;
D = +·955, E = −·296 ; G = +·183, H = +·592, K = −·785.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan		2·5	352	0 36	0	i 1 8	+ 4	—	1·2
Tashkent		4·0	320	i 0 58	+ 1	i 1 49	+ 7	i 1·9	2·8
Tchimkent		4·7	326	e 1 8	+ 1	e 2 2	+ 2	—	—
Samarkand		4·7	289	e 1 12	+ 5	e 1 58	− 2	—	3·3
Frunse		4·8	17	1 0	− 8	1 45	−18	—	2·2
Almata		5·9	31	e 1 13	−11	e 2 13	−18	—	—
Agra	E.	12·0	157	—	—	i 4 34	−29	—	—
Semipalatinsk		13·2	21	e 2 50	−15	e 5 8	−24	—	—
Baku		17·8	284	—	—	e 7 32	SS	—	—
Bombay		19·4	180	e 4 12	−11	i 7 47	− 7	—	—
Sverdlovsk		20·2	340	i 4 33	+ 1	i 8 12	+ 2	12·2	13·3
Calcutta	N.	20·6	125	i 6 17	?	e 7 49	−29	—	—
Grozny		21·0	293	4 43	+ 3	—	—	—	—
Tiflis		21·6	289	e 4 46	0	i 8 44	+ 6	e 12·0	—
Erevan		21·9	285	e 4 58	+ 8	i 8 36	− 8	—	—
Piatigorsk		23·0	295	e 5 40	+39	e 9 7	+ 2	—	—
Kodaikanal	E.	28·4	171	e 7 42?	?	—	—	—	—
Moscow		29·2	318	e 7 10	+72	e 11 24	+33	—	16·3
Simferopol		29·4	296	e 6 38	+38	—	—	—	—
Ksara		30·0	273	e 6 34	+29	e 11 54	+50	—	—
Pulkovo		34·2	323	i 7 16	+34	e 11 53	−16	18·7	22·4
Copenhagen		43·1	315	—	—	14 10	−12	22·7	—

Additional readings :—
Andijan P_g = +42s., iPP = +53s.
Samarkand i = +1m.32s. and +1m.49s., eS_g = +2m.9s.
Frunse iPP = +1m.15s., i = +1m.27s. and +1m.41s., S_g = +1m.50s.
Bombay iEN = +4m.52s.
Sverdlovsk L_q = +11·2m.
Grozny i = +5m.32s.
Tiflis eE = +5m.12s. = PPP + 5s.
Moscow e = +11m.40s., +12m.9s., +13m.25s., +14m.21s., and +15m.44s.
Simferopol e = +7m.22s.
Pulkovo e = +12m.44s.

Oct. 20d. Readings also at 1h. (near Graz), 3h. (Tiflis and near Santiago), 10h. (near Batavia and Malabar and near Sumoto), 11h. (Malabar), 13h. (Santiago), 18h. and 19h. (near Nagoya), 20h. (Balboa Heights, Tucson, and near Algiers), 21h. (near Florissant and Little Rock), 22h. (Jena and Tucson).

Oct. 21d. Readings at 0h. (Tucson), 1h. (Baku, Tashkent, Tiflis, Helwan, Bombay, and Ksara), 2h. (Ksara, Baku, Tashkent, Kodaikanal, Tiflis, Sverdlovsk (2), Copenhagen, Mount Wilson, and Pasadena), 3h. (near Medan (2)), 5h. (Calcutta, Colombo, Hong Kong, Phu-Lien, Vladivostok, Nanking, Tashkent, Ksara, Kodaikanal, Bombay, and near Medan), 6h. (Copenhagen and Tiflis), 8h. (Semipalatinsk and near Balboa Heights), 10h. (Mizusawa), 11h. (Huancayo), 12h. (Mizusawa), 13h. (Christchurch, La Paz, Huancayo, La Jolla, Mount Wilson, Pasadena, Tinemaha, Ksara, Moscow, Tucson, Sverdlovsk, and Tiflis (2)), 14h. (Copenhagen, Tashkent, Baku, Paris, Kew, Pulkovo, Strasbourg, Stuttgart, Scoresby Sund, San Juan, Ukiah, Sydney, and Rio de Janeiro), 15h. (Berkeley, Branner, Fresno, Lick, Tucson, and San Francisco), 20h. (Sverdlovsk, Tiflis, Tucson, and La Paz), 21h. (Berkeley, Branner, Lick, San Francisco, Tashkent, and Tiflis), 22h. (near Berkeley), 23h. (Branner, Fresno, Mount Wilson, Pasadena, Riverside, and near Tucson (2)).

Oct. 22d. 3h. 58m. 19s. Epicentre 1°·3N. 30°·3W. (as on 1934 May 22d.). X.

A = +·8631, B = −·5044, C = +·0227 ; δ = −12 ;
D = −·505, E = −·863 ; G = +·020, H = −·011, K = −1·000.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
La Paz	N.	41·4	243	e 8 11	+27	—	—	21·7	26·1
Granada		43·5	32	e 8 41	+40	—	—	—	—
Huancayo		46·7	252	e 8 25	− 1	—	—	25·3	—
Paris		55·2	26	—	—	e 17 29	+17	27·7	—
Oxford		56·0	22	—	—	e 17 26	+ 3	—	—
Kew		56·1	22	—	—	e 17 32	+ 8	e 25·7	—
Strasbourg		57·4	29	e 9 41?	− 5	e 17 41?	− 1	e 26·7	—
Uccle		57·5	25	—	—	e 17 48	+ 5	e 24·7	—
Stuttgart		58·3	30	e 9 55	+ 3	e 17 54	+ 1	e 29·7	—
De Bilt		58·8	25	—	—	18 8	+ 8	e 25·7	30·2
Edinburgh		58·8	18	—	—	e 18 23	+23	e 25·7	—
Copenhagen		64·4	25	—	—	19 24	+12	31·7	—
Ksara		69·6	55	e 11 6	− 2	e 20 29	+13	33·7	41·7
Sverdlovsk		89·4	34	—	—	e 25 0	+70	41·7	—
Tashkent		96·3	49	—	—	e 24 47	− 7	c 47·4	58·3

Additional readings :—
Huancayo e = +2m.24s., +19m.43s., +24m.15s., and +24m.44s.
Stuttgart e = +13m.35s.
Ksara ePP = +13m.50s.
Sverdovsk e = +29m.47s.
Tashkent e = +31m.17s. and +37m.53s.
Long waves were also recorded at Stonyhurst, San Fernando, Tiflis, and Tucson.

Oct. 22d. 22h. Epicentre probably west of Sumatra.

Medan eP = 1m.35s., iS = 2m.34s.
Phu-Lien 4m., L = 11m.
Batavia e = 4m.9s.
Calcutta eN = 4m.25s., e = 8m.17s.
Bombay eEN = 5m.45s.
Andijan eP = 8m.5s.
Frunse eP = 8m.18s.
Tashkent eP = 9m.51s., eS = 17m.5s., M = 24m.0s.
Sverdlovsk P = 10m.19s., eS = 18m.19s., L = 30m.
Ksara eP = 10m.35s., eS = 19m.31s., M = 39m.
Long waves were also recorded at Hong Kong, Nanking, and Vladivostok.

Oct. 22d. 23h. 49m. 23s. Epicentre 68°·5N. 19°·5W. (as on 1933 Oct. 5d.). R.2.

A = +·3455, B = −·1223, C = +·9304 ; δ = −3 ;
D = −·334, E = −·943 ; G = +·877, H = −·311, K = −·367.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Scoresby Sund		2·2	337	1 12	+41	2 1	+64	2·6	—
Reykjavik		4·5	194	0 58	− 6	1 33	−22	—	—
Bergen		13·2	115	e 2 59	− 6	e 6 5	+33	—	—
Edinburgh		14·6	141	—	—	e 5 53	−12	—	8·1
Durham		16·0	140	—	—	e 6 39	+ 1	—	9·6
Rathfarnham Castle		16·4	151	—	—	i 6 46	− 2	—	10·8
Stonyhurst		16·7	142	—	—	e 6 38	−17	8·6	9·3
Bidston		16·9	144	—	—	e 6 55	− 4	8·6	9·8
Upsala		18·0	100	4 9	+ 2	7 31	+ 6	e 9·6	11·8
Oxford		18·9	143	—	—	i 7 23	−21	e 8·1	10·5
Copenhagen		19·3	116	4 21	− 1	7 51	− 1	8·6	—
Kew		19·4	142	i 4 18k	− 5	e 7 44	−10	8·6	10·6
De Bilt		20·2	132	i 4 29k	− 3	8 3	− 7	e 8·6	13·8
Hamburg		20·3	122	e 4 27k	− 6	i 8 9	− 3	e 11·6	13·6
Jersey		21·1	147	i 4 52	+11	i 8 16	−12	9·7	11·1
Uccle		21·1	135	i 4 37	− 4	i 8 20	− 8	e 9·6	—
Paris		22·5	140	e 4 47	− 9	8 44	−11	10·6	11·6
Pulkovo		22·6	88	i 5 6	+ 9	9 16	+19	12·1	13·5
Jena		23·0	123	e 4 59	− 2	e 9 7	+ 2	e 12·6	17·1
Cheb		24·0	124	e 5 15	+ 5	e 12 45	L	(e 12·8)	—
Strasbourg		24·0	132	5 11a	+ 1	i 9 22	− 1	e 11·6	26·1
Stuttgart		24·3	130	e 5 10a	− 3	e 9 24	− 4	e 11·6	16·2
Prague		24·7	121	5 13k	− 4	9 36	0	e 14·0	16·1
Basle		24·9	133	e 5 17	− 2	e 9 38	− 1	—	—
Zurich		25·4	132	e 5 20	− 4	e 9 44	− 4	—	—
Chur		26·1	132	e 5 28	− 2	—	—	—	—
Vienna		26·9	120	e 5 38	+ 1	e 10 16	+ 2	—	—
Graz		27·6	122	—	—	e 10 37	+12	e 18·4	—
Moscow		28·2	88	5 58	+ 9	e 10 51	+16	e 13·8	16·0
Zagreb		28·9	123	e 5 55	0	—	—	—	—
Barcelona		29·4	146	—	—	e 12 48	?	e 15·1	26·8
Granada		32·5	150	e 6 31	+ 4	e 11 38	− 5	—	—
Sverdlovsk		35·6	68	7 22	+28	13 3	+33	18·3	20·1
Theodosia		36·2	102	(e 7 6)	+ 6	e 7 6	P	25·6	—
Yalta		36·2	103	(e 7 8)	+ 8	e 7 8	P	21·3	—
Ottawa		36·3	261	—	—	e 13 7	+26	e 18·6	—
Toronto		39·2	262	—	—	e 13 51	+27	21·6	—
Grozny		41·4	92	7 55	+11	e 18 47	?	34·1	—
Tiflis		42·5	95	e 8 1	+ 8	e 14 21	+ 8	e 20·6	—
Ksara		46·3	109	i 8 27k	+ 4	e 15 18	+ 9	—	—
Florissant		47·4	269	—	—	i 16 10	+46	e 26·2	—
Tashkent		51·7	73	e 12 11	PPPP	e 16 25	+ 1	—	—
Tucson		60·7	285	i 10 31a	+22	i 21 22	SS	e 31·1	—
Mount Wilson	Z.	61·4	291	i 10 37	+23	—	—	—	—
Calcutta	N.	76·4	65	e 16 51	PPPP	—	—	—	—

Additional readings :—
Edinburgh i = +7m.6s.
Durham +7m.17s.
Rathfarnham Castle iS = +7m.49s.
Stonyhurst i = +6m.48s., +7m.49s., +8m.6s., and +8m.20s.
Copenhagen +8m.13s. =SSS+0s.
Hamburg = +4m.31s.
Jersey i = +9m.7s., and +9m.28s.
Jena ePE = +5m.3s.
Strasbourg i = +5m.23s.
Stuttgart iP = +5m.13s., eZ = +5m.35s.
Toronto e = +17m.51s.
Ksara ePP = +10m.7s.
Florissant eN = +19m.36s., iZ = +19m.44s.
Mount Wilson eZ = +12m.55s.
Long waves were also recorded at Vermont, Philadelphia, Chicago, Baku, Almeria, Tortosa, Ivigtut, and Karlsruhe.

Oct. 22d. Readings also at 4h. (Tiflis, near San Javier, and Santiago), 5h. (Ksara and Tiflis), 7h. (Manila, near Erevan, and Tiflis (2)), 8h. (Andijan, Frunse, Semipalatinsk, Baku, Tashkent, Sverdlovsk, Vladivostok, Mount Wilson (2), and Pasadena (2)), 9h. (Christchurch), 10h. (Adelaide, Melbourne, Riverview, Sydney, Perth, Hong Kong, Bombay, Paris, Nanking, Ksara, Baku, Tashkent, Sverdlovsk, Granada, Mount Wilson, Pasadena, Tinemaha, and Tucson), 11h. (Copenhagen, Strasbourg, Stuttgart, and Tiflis), 12h. (Mizusawa), 13h. (Santiago and La Plata), 14h. (near Santiago), 15h. (Mizusawa), 16h. (Apia, Christchurch, Wellington, Vladivostok, Sverdlovsk, Tashkent, Stuttgart, Riverview, Ksara, Mount Wilson, Pasadena, Santa Barbara, and Tucson), 17h. (Oak Ridge), 18h. (Mount Wilson, Pasadena, and Tucson), 23h. (Husan).

Oct. 23d. 0h. 0m. 12s. Epicentre 68°·5N. 19°·5W. (as on 1936 Oct. 22d.). R.3.

$A = +\cdot3455$, $B = -\cdot1223$, $C = +\cdot9304$; $\delta = -3$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Scoresby Sund		2·2	337	1 13	+42	2 2	+65	2·8	—
Reykjavik		4·5	194	0 58	− 6	1 33	−22	—	—
Bergen		13·2	115	3 3	− 2	—	—	e 6·1	—
Edinburgh		14·6	141	—	—	i 6 38	+33	—	8·0
Rathfarnham Castle		16·4	151	—	—	i 6 42	− 6	—	10·5
Stonyhurst		16·7	142	—	—	e 6 19	−36	8·3	9·1
Bidston		16·9	144	—	—	e 7 41	−18	8·8	9·1
Upsala		18·0	100	e 4 8	+ 1	7 28	+ 3	e 8·8	10·8
Oxford		18·9	143	—	—	i 7 40	− 4	e 8·2	10·4
Copenhagen		19·3	116	4 20	− 2	7 50	− 2	8·8	—
Kew		19·4	142	i 4 16k	− 7	e 7 42	−12	8·8	10·7
De Bilt		20·2	132	—	—	e 8 1	− 9	e 8·8	13·8
Hamburg		20·3	122	e 4 30	− 3	i 8 8	− 4	e 10·4	11·8
Jersey		21·1	147	—	—	i 8 15	−13	9·3	11·0
Uccle		21·1	135	e 4 35	− 6	i 8 18	−10	e 9·8	—
Paris		22·5	140	—	—	e 8 49	− 6	11·8	12·8
Pulkovo		22·6	88	i 5 7	+10	9 21	+24	11·9	12·7
Cheb		24·0	124	—	—	e 9 29	+ 6	—	17·8
Strasbourg		24·0	132	e 4 48?	−22	—	—	—	—
Stuttgart		24·3	130	e 5 13	0	e 9 24	− 4	e 11·7	16·2
Prague		24·7	121	e 5 17	0	e 9 29	− 7	e 13·3	15·8
Basle		24·9	133	e 5 15	− 4	e 9 47	+ 8	—	—
Neuchatel		25·3	134	e 5 18	− 5	e 9 31	−15	—	—
Zurich		25·4	132	e 5 19	− 5	e 9 41	− 7	—	—
Moscow		28·2	88	6 2	+13	e 11 5	+30	14·0	16·0
Zagreb		28·9	123	e 5 15	−40	e 8 14	?	e 17·1	—
Granada		32·5	150	e 5 48?	−39	—	—	—	—
Algiers		34·1	147	—	—	i 8 36	PPPP	17·8	—
Sverdlovsk		35·6	68	i 7 23	+29	15 7	SSSS	18·2	20·7
Tiflis		42·5	95	7 58	+ 5	e 14 1	−12	18·9	26·9
Baku		45·5	91	—	—	(13 48?)	−69	13·8	—
Ksara		46·3	109	i 8 27	+ 4	e 15 18	+ 9	—	—
Tashkent		51·7	73	e 9 0	− 4	(e 16 0)	−24	e 16·0	18·6
Tucson		60·7	285	e 10 30	+21	—	—	e 31·3	—
Mount Wilson	z.	61·4	291	i 10 38	+24	—	—	—	—
Bombay		73·3	81	—	—	e 19 48?	−72	—	—

Additional readings :—
Bergen i = +3m.12s.
Edinburgh i = +6m.51s. and +7m.4s.
Rathfarnham Castle iS = +7m.46s.
Stonyhurst i = +7m.37s.
Oxford i = +6m.25s.
Copenhagen +8m.11s. = SS + 2s.
Kew iNZ = +11m.36s.
Jersey i = +8m.28s., +8m.39s., and +10m.24s.
Sverdlovsk i = +16m.45s.
Ksara ePP = +10m.9s.
Tashkent e = +9m.40s., +9m.56s., and +11m.4s.
Mount Wilson iZ = +12m.53s.
Long waves were also recorded at St. Louis, San Fernando, Berkeley, Madison, Ivigtut, Ukiah, Vladivostok, Vienna, and Göttingen.

Oct. 23d. 6h. 24m. 25s. Epicentre 61°·3N. 150°·7W. N.1.

A = −·4188, B = −·2350, C = +·8771; δ = −8;
D = −·489, E = +·872; G = −·765, H = −·429, K = −·480.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
College		3·8	18	i −0 8	−62	—	—	—	—
Sitka		8·9	112	1 56	−10	—	—	—	—
Seattle		21·1	117	c 4 46	+ 5	8 7	−21	9·3	—
Saskatoon		25·3	91	c 5 26	+ 3	c 9 58	+12	—	—
Ferndale	E.	26·2	128	c 5 48	+17	c 10 42	+40	—	—
Butte		26·6	108	5 37	+ 2	i 10 34	+25	12·7	—
Bozeman		27·6	106	c 5 42	− 2	c 10 18	− 7	—	—
Ukiah		27·9	129	c 5 45	− 1	c 11 0	+30	—	—
Berkeley		29·3	129	c 5 57	− 2	c 10 57	+ 4	—	—
San Francisco		29·4	129	c 5 38	−22	c 10 35	−20	—	—
Branner	E.	29·8	129	e 6 2	− 1	—	—	—	—
Lick	N.	30·0	129	e 6 4	− 1	—	—	—	—
Fresno	N.	31·3	126	e 6 14	− 3	—	—	—	—
Tinemaha	N.	31·5	125	e 6 18	0	i 11 38	+10	—	—
Haiwee		32·5	125	c 6 26	− 1	c 11 46	+ 3	—	—
Santa Barbara		33·3	128	i 6 33	− 1	c 12 15	+20	—	—
Mount Wilson		34·1	127	i 6 41	0	—	—	—	—
Pasadena		34·2	127	i 6 40	− 2	e 11 56	−13	e 17·2	—
Riverside		34·6	127	i 6 43	− 3	c 12 14	− 1	—	—
Denver		35·1	107	e 6 55	+ 5	e 12 27	+ 4	e 16·9	20·7
La Jolla		35·7	127	i 6 53	− 2	i 12 39	+ 7	—	—
Tucson		38·8	119	7 19 a	− 3	e 13 19	+ 1	e 18·4	—
Des Moines		38·9	93	e 7 29	+ 6	e 13 24	+ 4	e 16·2	—
Madison		39·9	88	e 7 29	− 2	i 13 42	+ 7	e 19·5	—
Honolulu		40·3	189	e 6 41	−54	e 13 40	− 1	—	—
Chicago (Loyola)		41·6	89	e 7 43	− 2	i 14 0	0	—	—
Chicago		41·7	89	e 7 45	− 1	14 3	+ 1	18·7	—
Florissant		42·7	94	i 7 51	− 3	i 13 49	−27	e 18·1	22·1
St. Louis	E.	42·9	94	c 7 53	− 3	i 14 16	− 3	e 21·3	22·9
Ann Arbor		43·2	84	e 8 5	+ 7	i 14 41	+17	i 21·0	28·1
Scoresby Sund		43·4	24	8 4	+ 4	14 52	+25	17·6	—
Ivigtut		44·1	43	8 10	+ 4	14 52	+15	21·6	—
Toronto		44·2	79	c 8 4	− 2	i 14 40	+ 1	i 21·1	24·6
Ottawa		44·6	75	8 9	− 1	14 53	+ 9	21·1	—
Buffalo		45·0	79	i 8 15	+ 2	—	—	—	—
Little Rock		45·0	99	e 8 8	− 5	e 14 52	+ 2	e 22·4	24·4
Mizusawa	E.	46·2	276	e 8 23	+ 1	e 15 43	+36	—	—
Ithaca		46·5	78	e 8 31?	+ 6	i 15 21?	+ 9	—	—
Vermont		46·5	74	i 8 26	+ 1	i 15 6	− 6	i 24·3	—
Sendai		47·0	274	8 33	+ 4	—	—	—	—
Pennsylvania		47·1	80	i 8 30	+ 1	e 15 28	+ 8	—	28·7
Vladivostok		47·5	285	e 8 35	+ 3	e 15 25	− 1	16·2	31·8
Hukusima		47·6	274	8 31	− 2	15 21	− 6	—	—
Mito		48·7	273	8 45	+ 4	—	—	—	—
Oak Ridge		48·7	75	i 8 41	0	e 15 53	+10	e 21·6	—
East Machias		48·9	69	i 8 42	− 1	e 15 39	− 6	i 24·3	—
Kakioka		49·0	273	8 35	− 9	—	—	—	—
Fordham		49·0	77	i 8 43	− 1	—	—	—	—
Georgetown		49·0	81	i 8 42	− 2	—	—	—	—
Tukubasan		49·0	273	8 42	− 2	—	—	—	—
Weston		49·0	75	i 8 44	0	—	—	—	—
Philadelphia		49·1	79	i 8 43	− 1	i 15 49	+ 1	i 23·7	—
Maebasi		49·4	274	8 45	− 2	15 52	0	—	—
Kumagaya		49·4	274	8 44	− 3	—	—	—	—
Nagano		49·6	276	8 48	0	15 55	0	—	—
Tokyo		49·6	273	8 47	− 1	—	—	—	—
Oiwake		49·7	274	8 41	− 8	—	—	—	—
Kohu		50·2	274	8 57	+ 4	—	—	—	—
Mera		50·2	272	8 57	+ 4	—	—	—	—
Misima		50·5	273	8 47	− 8	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Halifax		50·7	67	e 8 55	− 2	i 16 14	+ 3	—	—
Columbia		51·0	89	e 8 59	0	e 16 17	+ 2	e 25·3	—
Gihu		51·3	274	9 2	+ 1	16 23	+ 4	—	—
Nagoya		51·4	274	e 8 57	− 5	—	—	—	—
Kameyama		51·9	274	9 31	+25	—	—	—	—
Kobe	E.	52·6	275	e 9 6	− 5	e 17 16	+39	—	—
	N.	52·6	275	e 9 8	− 3	16 53	+16	—	—
	Z.	52·6	275	e 9 7	− 4	e 16 6	−31	—	—
Wakayama		53·0	275	9 9	− 5	—	—	—	—
Sumoto		53·0	275	9 11	− 3	e 16 58	+16	e 29·6	—
Siomisaki		53·3	275	9 29	+13	—	—	—	—
Heizyo		53·5	287	e 9 31	+13	e 17 22	+33	26·0	—
Yingkow		53·8	291	—	—	16 44	− 9	—	—
Hamada		53·9	278	8 53	−28	—	—	—	—
Keizyo		54·2	285	e 9 20	− 3	e 17 13	+15	e 29·6	—
Zinsen		54·4	286	e 9 20	− 4	e 17 1	0	e 25·6	—
Taikyu		54·8	282	e 9 27	0	—	—	—	—
Tacubaya	N.	55·0	115	9 27	− 2	17 21	+12	—	—
Hukuoka		55·8	279	e 9 35	+ 1	e 17 5	−15	e 26·3	—
Hukuoka B		55·8	279	e 9 43	+ 9	e 17 14	− 6	—	—
Unzendake		56·6	279	10 5	+25	—	—	—	—
Nagasaki		56·8	279	9 39	− 3	—	—	—	—
Bergen		56·9	14	9 44	+ 2	17 41	+ 6	e 28·1	37·6
Upsala		58·5	8	9 52	− 2	17 57	+ 1	e 26·6	36·7
Pulkovo		58·9	1	i 9 56	− 1	e 18 3	+ 2	30·6	31·6
Sverdlovsk		59·3	342	i 10 9	+ 9	i 18 19	+12	36·8	37·4
Edinburgh		60·0	21	e 10 15	+11	i 18 23	+ 7	28·6	39·6
Durham		61·4	20	i 10 20	+ 6	18 45	+11	—	38·6
Zi-ka-wei	Z.	62·0	285	e 10 14	− 4	18 35	− 7	33·6	41·0
Rathfarnham Castle		62·0	24	i 10 32	+14	i 19 6	+24	31·6	40·6
Stonyhurst		62·1	22	i 10 36	+17	i 18 46	+ 3	28·6	39·6
Copenhagen		62·3	12	i 10 18a	− 2	18 44	− 2	30·6	—
Nanking		62·5	288	e 10 18	− 4	19 2	+14	i 32·8	41·8
Bidston		62·5	23	i 10 37	+15	i 19 9	+21	30·6	39·7
Moscow		62·8	356	e 10 22	− 2	18 55	+ 3	31·3	40·2
Hamburg		64·1	14	i 10 34a	+ 1	i 19 18	+ 9	e 30·6	40·6
Oxford		64·3	21	10 22	−12	i 19 16	+ 5	e 28·6	41·0
Kew		64·8	20	i 10 41a	+ 4	i 19 23	+ 6	e 32·6	41·0
De Bilt		65·0	17	10 37	− 2	19 27	+ 7	e 30·6	45·2
Göttingen		66·1	14	i 10 43	− 3	i 19 36	+ 2	—	42·6
Uccle		66·1	18	10 44a	− 2	i 19 38	+ 4	e 32·6	41·2
Jersey		66·7	23	i 10 50	0	19 44	+ 3	31·7	41·1
Jena		66·9	12	e 10 50	− 1	e 19 49	+ 6	e 31·6	41·6
Cheb		67·8	12	e 11 6	+ 9	e 20 2	+ 8	36·6	39·6
Paris		67·8	19	e 10 55	− 2	e 20 14	+20	32·6	43·6
Karenko		68·0	281	10 49	− 9	—	—	—	—
Prague		68·0	11	10 55	− 3	20 4	+ 7	e 31·6	46·6
Karlsruhe		68·4	16	11 0	− 1	20 2	0	e 36·2	45·9
Almata		68·6	326	e 11 18	+16	—	—	—	—
Strasbourg		68·8	16	i 10 58a	− 5	20 7	0	e 33·6	45·6
Stuttgart		68·8	15	e 11 1a	− 2	i 20 10	+ 3	e 35·6	45·7
Frunse		69·6	327	e 11 5	− 3	e 20 33	+17	36·8	—
Basle		69·8	16	e 11 6	− 3	e 20 34	+15	—	—
Vienna		70·0	9	e 11 5	− 6	20 21	0	e 42·1	47·1
Zurich		70·1	16	e 11 8	− 3	e 20 24	+ 2	—	—
Neuchatel		70·3	17	e 11 9	− 4	e 20 27	+ 2	—	—
Chur		70·7	15	e 11 12	− 3	e 20 37	+ 7	—	—
Budapest		70·9	8	11 25	+ 9	20 41	+ 9	e 37·6	45·6
Graz		71·0	11	e 11 11	− 6	e 20 39	+ 6	e 39·6	47·6
San Juan		71·3	86	e 11 7	−12	e 20 35	− 3	e 36·3	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tchimkent		71·4	331	11 20	+ 1	20 49	+11	—	—
Laibach	N.W.	72·0	12	e 11 22	− 1	e 20 45	0	e 40·9	50·0
Andijan		72·1	328	11 21	− 2	21 3	+17	42·7	—
Zagreb		72·3	10	e 11 23	− 2	29 35?	SSSS	e 40·3	—
Padova		72·4	14	e 11 34	+ 9	20 56	+ 6	e 39·6	48·6
Tashkent		72·4	331	i 11 20	− 5	i 20 40	−10	e 38·3	48·8
Hong Kong		73·0	286	11 31	+ 2	20 53	− 4	—	48·7
Bagnères		73·0	23	e 12 6	+37	e 21 18	+21	e 37·6	44·6
Theodosia		73·6	356	11 32	0	21 5	+ 1	31·6	—
Belgrade	N.W.	73·6	7	i 11 32	0	i 21 6	+ 2	e 39·8	—
Marseilles		73·6	19	c 11 5	−27	(21 2)	− 2	33·6	—
Florence		73·9	14	11 35	+ 1	21 13	+ 6	—	—
Sebastopol		74·0	358	11 36	+ 1	21 11	+ 3	—	—
Piatigorsk		74·1	350	11 31	− 4	21 5	− 5	38·6	—
Yalta		74·1	357	i 11 33	− 2	21 8	− 2	30·1	—
Bucharest		74·3	3	11 38	+ 2	21 26	+14	—	42·6
Samarkand		74·5	332	i 10 11	?	—	—	—	—
Grozny		74·5	349	i 11 39	+ 2	e 21 32	+18	30·8	—
Sotchi		74·8	354	e 11 41	+ 2	—	—	42·9	—
Barcelona		74·9	22	e 11 52	+12	21 20	+ 1	33·5	48·1
Tortosa	N.	75·2	23	e 11 33	− 8	e 21 30	+ 8	e 35·6	49·5
Sofia		75·9	6	e 11 45	0	e 21 28	− 2	—	50·3
Tiflis		76·2	349	i 11 44a	− 3	i 21 29	− 5	e 37·6	50·8
Manila		76·4	276	i 11 52	+ 4	i 21 35	− 1	33·6	—
Apia		76·9	200	—	—	21 35?	− 7	e 35·6	—
Baku		77·0	345	i 11 50	− 2	i 21 40	− 3	e 37·6	46·5
Capodimonte	E.	77·1	12	e 12 7	+14	e 21 47	+ 3	42·6	52·6
Phu-Lien		77·7	291	e 11 53	− 3	e 21 57	+ 6	42·6	—
Granada		77·8	28	i 12 3	+ 6	i 21 57	+ 5	—	—
San Fernando		78·1	30	e 12 1	+ 3	i 22 20	+25	37·1	—
Almeria		78·5	26	e 12 10	+10	i 22 13	+14	e 41·4	—
Algiers		79·6	22	i 12 4	− 2	e 22 9	− 2	34·6	45·6
Agra		83·2	318	e 12 22	− 2	22 32	−17	—	—
Calcutta	N.	83·8	307	12 34	+ 7	22 48	− 7	39·4	47·7
Ksara		84·7	355	i 12 29a	− 3	i 23 4	− 1	—	—
Helwan		88·8	359	—	—	i 23 35	−10	—	58·7
Hyderabad		92·1	314	—	—	23 50	[+ 5]	40·0	57·6
Bombay		92·6	319	e 13 2	− 7	23 35	[−13]	43·6	51·5
Huancayo		93·7	109	13 10	− 4	24 22	− 8	42·7	—
Dakar		95·5	45	i 13 13	−10	—	—	—	66·6
Medan		96·5	290	—	—	i 24 13	[+ 5]	e 49·6	—
Kodaikanal	E.	99·2	313	e 13 54	+14	25 39	+20	i 46·9	54·2
La Paz		100·9	104	e 13 55	+ 7	i 24 25	[− 5]	47·6	69·1
Colombo		101·4	308	18 5	PP	—	—	—	55·3
Batavia		101·4	278	17 35	PP	24 36	[+ 3]	e 54·6	—
Riverview		106·1	227	—	—	e 24 53	[− 2]	51·0	56·4
Christchurch		109·0	207	e 17 33a	[−42]	e 26 35	{+35}	e 44·7	51·0
Adelaide		111·9	237	e 13 41	−59	—	—	48·9	63·3
Melbourne		112·0	230	e 19 9	PP	i 27 14	{+53}	48·0	66·9
Rio de Janeiro		118·3	86	e 27 23	S	(e 27 23)	{+18}	e 52·6	—
La Plata		121·4	106	20 47	PP	—	—	61·5	—
Cape Town		151·8	19	—	—	i 33 58	SKSP	71·1	85·0

College i = +8s. and +29s.
Sitka e = +2m.5s., i = +2m.11s., and +2m.50s.
Seattle eP = +4m.51s., ePP = +5m.2s., ePPP = +5m.20s., e = +5m.51s., +6m.10s., +8m.48s., and +8m.52s. =SS − 2s.
Ferndale ePN = +5m.54s., eN = +10m.18s. and +10m.33s., eE = +12m.15s.
Butte P = +5m.45s., e = +5m.56s., e = +9m.40s.
Bozeman e = +10m.28s., S = +10m.31s., SSS = +12m.39s.
Ukiah SSS = +12m.8s.
Berkeley iNZ = +6m.3s., e = +6m.8s., eEN = +11m.1s.
Branner eN = +6m.6s., iN = +6m.42s., iE = +6m.47s., iN = +6m.57s., iE = +7m.1s., i = +7m.24s., iN = +7m.32s.
Lick ePE = +6m.15s.
Pasadena iSN = +12m.15s.

Continued on next page.

Denver eE = +7m.2s., +7m.15s., and +7m.24s., eN = +7m.28s., ePPPN = +8m.19s., eEN = +8m.23s., eE = +8m.27s., eEN = +8m.35s., iSN = +12m.35s.
Tucson P = +7m.25s., ePP = +8m.51s., e = +8m.58s., +13m.29s. and +16m.19s., eSSS = +16m.33s.
Des Moines iP = +8m.55s., i = +13m.32s. ; readings given at 0h.
Madison ePP = +8m.51s., ePPP = +9m.19s., eSS = +16m.25s., eSSS = +17m.1s.
Honolulu P = +7m.35s., ePP = +9m.10s., ePPP = +9m.58s., iS = +13m.47s., e = +14m.17s., SS = +16m.48s., SSS = +17m.23s.
Chicago i = +9m.40s., e = +13m.42s. and +16m.0s., eSS = +16m.32s., e = +16m.56s. and +17m.11s.
Florissant iPP = +7m.57s., iP_cP = +8m.43s., ePPEN = +9m.19s., iPPZ = +9m.21s., iSE = +14m.17s., iSP = +14m.28s., iSSN = +17m.0s., eSSN = +17m.6s., iSSSN = +18m.34s.
St. Louis iPPE = +7m.59s., iPPPEN = +9m.52s., eS_cPE = +14m.5s., isSE = +14m.27s., eSSE = +16m.59s.
Ann Arbor iPP = +9m.59s., esS = +17m.47s., iSSSE = +19m.17s.
Scoresby Sund i = +9m.55s., +18m.11s.
Ivigtut +10m.5s. and +17m.43s.
Toronto iPP = +9m.55s. ; T_0 = 6h.24m.26s.
Ottawa PP = +9m.45s., SS = +17m.57s. ; T_0 = 6h.24m.18s.
Buffalo PP = +18m.9s.
Little Rock iPEN = +8m.10s., ipPEN = +8m.15s., iPPPN = +10m.7s., eN = +14m.46s., esSEN = +15m.0s., eSSN = +18m.15s.
Ithaca eN = +10m.17s.? iSSE = +18m.13s.? eN = +18m.21s.? iN = +19m.13s.?
Vermont i = +9m.31s., iPP = +10m.17s., i = +10m.28s., +15m.12s., +15m.16s., and +15m.23s., e = +18m.0s., iSS = +18m.9s., i = +18m.37s., +18m.46s., and +21m.43s.
Pennsylvania i = +8m.40s., e = +19m.5s., and +23m.23s., i = +24m.54s.
Oak Ridge iP_cPZ = +10m.6s., iPPEZ = +10m.36s., P_cSZ = +14m.4s., eN = +17m.52s., iS_cS = +18m.38s., iSS = +19m.42s.
East Machias i = +8m.48s., iPP = +10m.41s., i = +15m.53s., iS_cS = +18m.31s., iSS = +19m.21s., i = +20m.1s., +21m.31s., and +22m.54s.
Fordham iP_cP = +9m.47s.
Weston P_cP = +10m.2s., PP = +10m.51s., PS = +15m.57s., SS = +19m.44s.
Philadelphia i = +8m.48s., +10m.25s., +10m.41s., +16m.7s., +18m.49s., +18m.53s., +19m.24s., and +21m.2s.
Columbia e = +19m.4s., eSS = +19m.54s.
Zinsen ePPN = +11m.16s.
Bergen e = +19m.35s.
Upsala PP = +13m.29s., iE = +19m.43s. = S_cS +1s., iN = +19m.58s.
Sverdlovsk L_q = +29·3m.
Edinburgh i = +11m.58s., +13m.56s., +14m.12s., and +18m.40s.
Zi-ka-wei iZ = +10m.35s., PPZ = +12m.43s., PPPZ = +14m.25s., PPPZ = +15m.27s., iZ = +19m.17s., SSZ = +23m.9s., SSSZ = +25m.27s., SSSSZ = +26m.23s.
Rathfarnham Castle i = +12m.33s., +14m.46s., +19m.6s., +20m.14s. = S_cS +8s., +22m.23s., and +24m.23s.
Stonyhurst i = +19m.6s.
Copenhagen PP = +12m.39s., PPP = +14m.11s., SE = +18m.50s., e = +20m.11s., iE = +20m.32s., SS = +23m.11s., SSS = +25m.53s.
Nanking iEN = +10m.29s., PPE = +12m.51s., PPP = +14m.27s., SSE = +23m.51s., iEN = +24m.39s., SSSE = +26m.3s., SSSSE = +28m.3s.
Bidston iPS = +19m.42s., e = +27m.7s.
Kew iZ = +10m.53s., iPPZ = +13m.8s., iSN = +19m.27s., iPS = +19m.40s., iZ = +20m.4s., iS_cSEN = +20m.46s., eSSEN = +23m.34s., eN = +27m.16s.
De Bilt iPPZ = +13m.2s., iPPPZ = +14m.20s.
Göttingen iPEN = +10m.47s., iPPNZ = +13m.17s., eSNZ = +19m.53s.
Uccle PPN = +13m.19s., PPPN = +15m.17s., iPSN = +19m.56s., iSSN = +24m.10s.
Jersey e = +11m.55s. and +13m.8s., iPP? = +13m.48s., i = +15m.15s., +17m.2s., +20m.2s., +21m.3s., +23m.24s., and +25m.13s.
Jena eE = +15m.21s. = PPPP −1s.
Strasbourg ePP = +13m.38s., ePPPP = +16m.5s., iPS = +20m.28s., i = +20m.55s., SS = +24m.25s., SSSS = +29m.27s., M = +45m.35s.
Stuttgart iNZ = +11m.15s., ePP = +13m.39s., e = +16m.5s.
Vienna P_cP = +11m.37s., PP = +13m.38s., PS = +20m.50s.
Budapest iE = +11m.35s., eN = +11m.37s. and +11m.41s., iE = +11m.45s., eSE = +20m.49s., eE = +21m.1s., eN = +21m.21s., eE = +21m.29s., iN = +21m.45s., iE = +21m.57s.
Graz iPS = +20m.59s.
San Juan ePP = +14m.10s., e = +19m.51s., ePS = +20m.45s., S_cS = +21m.24s., e = +21m.39s., SS = +25m.0s., eSSS = +28m.38s.
Laibach iNW = +11m.35s.
Hong Kong PP = +14m.21s., S_cS? = +21m.12s., SS = +25m.44s.
Bagnères ePS = +21m.48s.

Continued on next page.

Belgrade iNW = +12m.35s., ePPNW = +14m.26s., iPKPNW = +22m.0s.
Marseilles ePP = +13m.50s., i = +23m.3s. and +24m.20s.; the true S is given as PS.
Bucharest PPEN = +14m.35s., PPPN = +16m.4s., PSN = +22m.0s., PSE = +22m.2s., SSN = +26m.27s.
Tiflis P_cPZ = +12m.9s., ePPZ = +14m.44s., PPPN = +16m.35s., SKSN = +21m.47s., SKKSN = +22m.15s., eSSN = +26m.24s., eEN = +30m.53s.
Algiers i = +12m.43s., e = +15m.5s., e? = +18m.31s., iPS = +22m.27s.
Agra eN = +12m.28s., ePPEN = +15m.32s., PSE = +23m.12s.
Calcutta PPN = +15m.42s., PSN = +23m.33s.
Ksara PP = +15m.49s., PS = +23m.57s.
Helwan i = +23m.55s. and +26m.5s.
Bombay PP = +16m.48s., e = +20m.39s., PPS = +25m.56s., SS = +30m.42s.
Huancayo ePP = +16m.40s., eSKS = +23m.47s., ePS = +25m.36s.
Dakar iPP = +17m.3s., eSS = +31m.0s., iSSS = +32m.49s.
Kodaikanal iPPE = +17m.55s., iSKSE = +24m.29s., iPSE = +26m.48s., iPPSE = +27m.37s., iSSE = +32m.37s., iSSSE = +36m.19s.
La Paz PPZ = +17m.59s., iSKKSN = +24m.47s., SKKSE = +24m.56s., PSN = +27m.1s., iSSN = +32m.15s.
Riverview iEN = +26m.25s.
Christchurch eN = +24m.35s., SNZ = +28m.6s.
Adelaide e = +18m.57s., e = +28m.28s., e = +34m.42s. = SS − 2s.
Melbourne i = +29m.5s. and +34m.57s.
Cape Town iPPSN = +36m.30s., iSSE = +43m.18s.
Long waves were also recorded at Reykjavik, Perth, Sydney, and Wellington.

Oct. 23d. 16h. 25m. 28s. Epicentre 61°·3N. 150°·7W. (as at 6h.). X.

A = −·4188, B = −·2350, C = +·8771; δ = −8.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
College		3·8	18	−0 43	−97	0 6	−91	1·0	—
Sitka		8·9	112	—	—	e 4 14	S*	4·9	—
Ukiah		27·9	129	e 4 32?	−74	e 11 32?	+62	—	—
Tinemaha	N.	31·5	125	e 6 22	+ 4	—	—	—	—
Haiwee		32·5	125	e 6 29	+ 2	—	—	—	—
Mount Wilson		34·1	127	i 6 33	− 8		—	—	—
Riverside		34·6	127	i 7 6	+20	—	—	—	—
La Jolla		35·7	127	e 7 5	+10	—	—	—	—
Tucson		38·8	119	e 7 12	−10	e 13 24	+ 6	e 19·3	—
Madison		39·9	88	—	—	e 16 32?	SSS	—	—
Chicago		41·7	89	—	—	e 13 46	−16	—	—
Florissant		42·7	94	e 7 52	− 2	e 17 22	SS	i 22·0	25·7
Ottawa		44·6	75	—	—	e 14 44	0	e 21·5	—
Vermont		46·5	74	—	—	e 14 49	−23	e 22·1	—
Vladivostok		47·5	285	—	—	e 15 20	− 6	22·6	31·4
Weston		49·0	75	i 8 38	− 6	—	—	—	—
Philadelphia		49·1	79	e 8 37	− 7	e 15 42	− 6	e 23·0	—
Chiufeng		57·0	295	e 17 25?	S	(e 17 25?)	−11	e 29·0	38·4
Pulkovo		58·9	1	e 10 9	+12	e 18 5	+ 4	31·5	—
Sverdlovsk		59·3	342	e 10 9	+ 9	—	—	24·5	33·0
De Bilt		65·0	17	—	—	e 19 20	0	e 34·5	—
San Juan		71·3	86	—	—	e 20 17	−20	e 36·8	—
Tashkent		72·4	331	e 17 14	PPPP	e 20 34	−16	e 35·2	47·6
Tiflis		76·2	349	e 11 48	+ 1	e 21 24	−10	40·5	49·1
Ksara		84·7	355	e 12 26	− 6	e 23 32	+27	46·5	53·5

Additional readings:—
College eP* = −33s., ePS = −14s., e = −2s., and +2s., S* = +19s., S_g = +28s.
Sitka e = +4m.21s. and +4m.36s.
Mount Wilson iZ = +6m.43s.
Tucson eSS = +16m.19s.
Chicago e = +13m.53s., +19m.59s., and +20m.17s.
Florissant eZ = +17m.35s.
Ottawa e = +18m.8s.
Vermont e = +16m.14s., +18m.24s., and +21m.44s.
Philadelphia e = +14m.10s., +16m.4s., +19m.10s., and +19m.28s.
San Juan e = +25m.33s. and +28m.50s.
Tashkent e = +25m.14s.
Long waves were also recorded at Baku and other American and European stations.

Oct. 23d. 19h. Shock in S.W. Pacific.

Adelaide iP =34m.0s., i =36m.33s., iS? =37m.9s., i =37m.21s., M =38m.54s.
Perth eP =35m.0s., i =39m.0s., M =41m.0s.
Riverview ePEN =35m.15s., eSE =39m.17s., eSN =39m.19s., eL =40m.54s., M =43m.34s.
Melbourne e =36m.52s., i =36m.58s. and 37m.37s., M =41m.24s.
Sydney eP =37m.24s., iS =39m.12s., L =40m.40s., M =42m.0s.
Christchurch ePE? =38m.56s., iS =42m.12s., L =43m.42s., M =45m.32s.
Arapuni i =46m.
Pasadena iPZ =49m.16s.
Mount Wilson ePZ =49m.17s., iZ =49m.24s.
Little Rock ePEN =49m.45s., iEN =50m.25s., eN =50m.48s.
Ksara e =50m.14s. and 59m.54s., M =92m.30s.
Tashkent e =55m.0s., 62m.42s., and 73m.42s., M =91m.6s.
Tiflis eP =55m.23s., eS =66m.32s., eL =82m., M =97·5m.
Sverdlovsk e =62m.3s., L =77m.
Long waves were also recorded at Wellington, Pulkovo, and some European stations.

Oct. 23d. Readings also at 1h. (near Erevan), 2h. (Reykjavik, Edinburgh, De Bilt, Uccle), 3h. (Edinburgh, Copenhagen, Strasbourg, Uccle, Philadelphia, Tucson, Pasadena, Riverside, and San Juan), 4h. (De Bilt, Paris, Stuttgart, and Manila), 5h. (near Frunse), 6h. (Pasadena, Mount Wilson, Riverside, Balboa Heights, College, and Zurich), 7h. (College), 8h. (Riverview, Perth, Adelaide, Wellington, Husan, College (2), Mount Wilson, Pasadena, Riverside, Tinemaha, and Tucson), 10h. (College), 11h. (Mount Wilson, Pasadena, College (2), and Ksara), 12h. (Ksara, Moscow, Sverdlovsk, Tashkent, Balboa Heights, Mount Wilson, and Pasadena), 13h. (Graz and Sverdlovsk), 14h. (Ksara, Erevan, Tiflis, Strasbourg (2), Padova, Ravensburg, near Stuttgart, and Zurich), 15h. (Chicago, Ottawa, Philadelphia, Vermont, Tucson, La Jolla, Mount Wilson, Pasadena, Tinemaha, College, and Sverdlovsk), 16h. (Tashkent), 18h. (Arapuni), 21h. (Wellington), 23h. (College and near Piatigorsk).

Oct. 24d. 8h. 8m. 21s. Epicentre 35°·7N. 140°·4E. (as on 1936 Sept. 30). R.3.

$$A = -\cdot6257,\ B = +\cdot5176,\ C = +\cdot5835;\quad \delta = -12;$$
$$D = +\cdot637,\ E = +\cdot771;\quad G = -\cdot450,\ H = +\cdot372,\ K = -\cdot812.$$

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tokyo		0·5	268	0 8	+ 1	0 16	+ 3		
Komaba		0·6	265	0 8	− 1	0 17	+ 2		
Tukubasan		0·6	335	0 6	− 3	0 13	− 2		
Mitaka		0·7	267	0 9	− 1	0 21	+ 3		
Kamakura		0·8	241	0 17a	+ 6	0 30	+ 9		
Nagoya		2·9	259	e 0 49	P_g	1 26	S*		
Mizusawa	E.	3·5	9	—	—	e 1 40	S*		
Sofia		6·6	4	e 1 40	+ 6	i 3 14	S_g	4·5	—
Istanbul		7·1	43	1 38	− 3	—	—	—	—
Capodimonte	N.	8·2	310	e 1 52	− 4	e 5 12	?	9·7	—
Bucharest		8·8	17	2 8	+ 3	e 3 56	+12	—	—
Belgrade		9·0	350	e 2 4	− 3	e 4 22	S*	—	5·2
Helwan		9·5	128	2 13	− 1	e 4 0	− 1	—	—
Ksara		11·0	97	e 2 39	+ 4	e 4 47	+ 9	—	—
Zagreb		11·0	335	2 37	+ 2	e 4 33	− 5	—	7·0
Sebastopol		11·9	41	2 48	+ 1	—	—	—	—
Yalta		12·2	43	2 48	− 3	6 59	S_g	—	—
Graz		12·3	336	e 2 54	+ 2	e 7 23	?	e 7·7	9·2
Padova		12·5	323	e 2 45?	−10	—	—	—	—
Vienna		13·1	341	e 3 0	− 3	e 7 33	?	—	—
Theodosia		13·2	43	e 3 12	+ 7	—	—	—	—
Chur		14·6	322	e 3 22	− 1	e 6 35	+30	—	—

Oct. 24d. 14h. 6m. 15s. Epicentre 36°·0N. 22°·7E. (as on 1932 Sept. 30d.). R.2.

$$A = +\cdot7463,\ B = +\cdot3122,\ C = +\cdot5878;\quad \delta = -6;$$
$$D = +\cdot386,\ E = -\cdot923;\quad G = +\cdot542,\ H = +\cdot227,\ K = -\cdot809.$$

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sofia		6·6	4	e 1 40	+ 6	i 3 14	S_g	4·5	—
Istanbul		7·1	43	1 38	− 3	—	—	—	—
Capodimonte	N.	8·2	310	e 1 52	− 4	e 5 12	?	9·7	—
Bucharest		8·8	17	2 8	+ 3	e 3 56	+12	—	—
Belgrade		9·0	350	e 2 4	− 3	e 4 22	S*	—	5·2
Helwan		9·5	128	2 13	− 1	e 4 0	− 1	—	—
Ksara		11·0	97	e 2 39	+ 4	e 4 47	+ 9	—	—
Zagreb		11·0	335	2 37	+ 2	e 4 33	− 5	—	7·0
Sebastopol		11·9	41	2 48	+ 1	—	—	—	—
Yalta		12·2	43	2 48	− 3	6 59	S_g	—	—
Graz		12·3	336	e 2 54	+ 2	e 7 23	?	e 7·7	9·2
Padova		12·5	323	e 2 45?	−10	—	—	—	—
Vienna		13·1	341	e 3 0	− 3	e 7 33	?	—	—
Theodosia		13·2	43	e 3 12	+ 7	—	—	—	—
Chur		14·6	322	e 3 22	− 1	e 6 35	+30	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sotchi		15·1	55	e 3 25	− 5	—	—	—	—
Prague		15·3	340	e 3 13?	−19	—	—	e 8·8	9·7
Zurich		15·4	322	e 3 30	− 4	e 6 20	− 4	—	—
Cheb		15·9	335	—	—	e 6 7	−29	e 9·0	10·7
Basle		16·1	321	e 3 39	− 4	—	—	—	—
Stuttgart		16·1	328	e 3 43	0	e 6 57	+16	e 10·3	11·1
Strasbourg		16·7	324	e 3 45?	− 5	—	—	e 9·7	—
Jena	N.	16·8	335	e 3 45	− 7	—	—	—	—
Piatigorsk		17·5	57	e 4 3	+ 3	e 5 45	?	—	—
Erevan		17·6	70	e 4 2	0	—	—	—	—
Tiflis		18·0	65	i 4 8	+ 1	e 7 27	+ 2	9·5	12·3
Grozny		19·1	60	4 26	+ 6	—	—	—	—
Hamburg		19·7	337	—	—	e 8 45?	+45	—	—
Uccle		19·8	324	e 4 26	− 1	8 6	+ 4	e 10·7	—
Almeria		20·1	280	4 29	− 2	—	—	—	—
De Bilt		20·3	327	e 4 32	− 1	e 8 28	+16	e 10·7	13·6
Copenhagen		20·9	344	4 39	0	8 28	+ 4	11·7	—
Granada		21·1	281	e 4 43	+ 2	e 8 36	+ 8	—	—
Moscow		22·1	23	e 4 51	− 1	e 8 51	+ 3	11·9	15·5
Upsala		24·1	354	e 5 7	− 4	e 9 25	0	—	—
Pulkovo		24·2	9	5 11	− 1	9 36	+ 9	15·5	16·3
Edinburgh		26·5	327	e 8 45?	PcP	—	—	—	—
Sverdlovsk		32·7	39	i 6 38	+ 9	e 11 53	+ 7	16·7	21·3
Andijan		38·7	67	e 7 13	− 8	—	—	—	—
Frunse		40·0	63	e 7 27	− 5	—	—	—	—

Additional readings :—
Sofia i = +3m.32s. and +3m.45s.?
Bucharest iPPN = +2m.50s., eEN = +4m.25s., SSEN = +4m.54s.
Belgrade eZ = +2m.38s. and +2m.50s., eNW = +3m.29s. and +4m.54s.
Ksara i = +5m.35s.
Zagreb eZ = +4m.51s., eNE = +5m.8s., eNW = +6m.1s.
Yalta e = +9m.10s.
Theodosia e = +10m.7s.
Stuttgart e = +8m.30s., e = +9m.15s., eEN = +9m.29s.
Long waves were also recorded at Kew, Paris, and Florence.

Oct. 24d. 16h. 2m. 36s. Epicentre 30°·6N. 141°·8E. (as on 1936 Sept. 18d.). R.3.

A = −·6764, B = +·5323, C = +·5090 ; δ = −6 ;
D = +·618, E = +·786 ; G = −·400, H = +·315, K = −·861.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		6·2	319	e 0 37	−51	1 41	−57	—	—
Sumoto	E.	6·9	304	e 1 30	− 8	e 5 2	?	—	8·6
	N.	6·9	304	e 1 38	0	e 4 58	?	—	6·4
Kobe	E.	7·0	308	e 1 46	+ 7	3 48	S_E	—	4·9
	Z.	7·0	308	e 1 39	0	e 3 34	S*	—	5·1
Toyooka		7·7	313	—	—	e 3 48	S*	e 5·2	—
Mizusawa	E.	8·5	355	e 2 2	+ 2	e 3 25	−11	—	—
Hukuoka B		10·2	290	e 2 25	+ 1	e 5 54	S_E	—	—
Taikyu		12·2	299	e 1 10	?	—	—	—	—
Vladivostok		14·8	331	e 3 30	+ 4	—	—	7·0	10·2
Zi-ka-wei	Z.	17·5	277	e 3 55	− 5	7 31	+18	11·2	17·3
Nanking		19·7	281	e 4 31	+ 5	8 17	SS	—	16·6
Chiufeng		22·9	302	e 3 50	−70	9 8	+ 5	e 11·3	14·6
Manila		24·9	235	5 31	+12	10 6	+27	12·8	—
Calcutta	N.	48·1	274	—	—	e 15 37	+ 3	—	—
Andijan		55·8	300	e 9 23	−11	—	—	—	—
Tashkent		58·0	304	i 9 52	+ 2	i 17 57	+ 8	e 27·2	37·5
Sverdlovsk		60·1	322	i 10 19	+14	18 31	+14	29·4	—
Baku		72·1	307	11 29	+ 6	e 20 55	+ 9	e 36·4	49·4
Pulkovo		73·6	331	—	—	e 29 42	SSSS	43·4	46·3
Tiflis		75·0	311	e 11 42	+ 2	e 21 21	+ 1	e 37·4	47·8
Mount Wilson	Z.	80·7	55	e 12 13	+ 1	—	—	—	—
Pasadena	Z.	80·7	55	e 12 12	0	—	—	—	—
Ksara		85·0	309	e 12 37	+ 4	e 23 11	+ 3	—	—

For Notes see next page.

NOTES TO OCT. 24d. 16h. 2m. 36s.

Additional readings :—
Sumoto ePZ = +1m.45s., eE = +3m.2s., eN = +3m.10s.
Kobe ePN? = +1m.51s.
Toyooka PEN? = 16h.1m.46s.
Ksara ePP = +15m.57s.
Long waves were also recorded at Hong Kong, Moscow, and some European stations.

Oct. 24d. Readings also at 0h. (Bucharest, Tiflis, Oak Ridge, Husan, and near Granada), 1h. (La Paz), 3h. (Andijan and Oak Ridge), 4h. (Mizusawa), 5h. (Yalta and near Wellington), 7h. (Andijan, Tashkent, near Frunse, and near Santiago), 8h. (Samarkand), 10h. (Tacubaya), 12h. (Mount Wilson, Pasadena, and Tucson), 13h. (Little Rock), 15h. (Sebastopol, Theodosia, Ksara, Erevan, Tiflis, Yalta, near Sotchi, near Tucson (2), and near Wellington), 16h. (near Sumoto), 18h. (Adelaide, Melbourne, Riverview, Sydney, Wellington, Christchurch, Almata, Tashkent, Tiflis, Tchimkent, Samarkand, Semipalatinsk, Ksara, Sverdlovsk, and near Andijan, and Frunse), 19h. (Tiflis, Ksara, near Hukuoka, Hukuoka B (2), and near Sotchi), 20h. (Malabar), 21h. (Andijan, Frunse, and Samarkand), 22h. (La Paz, Tucson, Semipalatinsk, Samarkand, near Almata, Andijan, Frunse, and Tchimkent).

Oct. 25d. 4h. 58m. 55s. Epicentre 33°·7N. 139°·0E. (as on 1935 Sept. 24d.). X.

$A = -\cdot6279$, $B = +\cdot5458$, $C = +\cdot5548$; $\delta = -4$;
$D = +\cdot656$, $E = +\cdot755$; $G = -\cdot419$, $H = +\cdot364$, $K = -\cdot832$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		2·3	311	0 30	− 3	1 11	S_g	—	1·6
Kobe		3·3	289	e 0 49	+ 2	1 28	+ 3	—	1·9
Sumoto		3·5	281	0 49a	− 1	1 39	S*	—	1·8
Toyooka		3·9	300	0 57	+ 1	1 42	+ 2	—	1·9
Mizusawa	E.	5·7	17	e 1 21	0	e 2 24	− 1	—	—
Hukuoka B		7·1	271	e 1 44	+ 3	e 3 37	S*	—	—
Vladivostok		10·9	332	—	—	e 3 51	−45	5·2	6·5
Nanking	E.	17·0	270	e 4 0	+ 6	e 7 35	+33	e 11·0	—
Tiflis		71·1	307	e 11 42	+25	—	—	38·1	42·2
Ksara		81·3	305	e 12 6	− 9	e 21 49	−41	—	—

Additional readings :—
Sumoto eSZ = +1m.42s.
Toyooka P = +1m.0s.
Long waves were also recorded at Tashkent and Sverdlovsk.

Oct. 25d. 15h. 30m. 30s. Epicentre 34°·5N. 140°·0E. (as on 1934 April 15d.). R.1.

Very near the position suggested by Japanese stations 34°·4N. 140°·0E.

$A = -\cdot6313$, $B = +\cdot5297$, $C = +\cdot5664$; $\delta = -7$;
$D = +\cdot643$, $E = +\cdot766$; $G = -\cdot434$, $H = +\cdot364$, $K = -\cdot824$.

Correction for depth of focus 0·0125 has been applied.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Mera	+0·3	0·4	342	0 11k	+ 1	0 21	+ 3	—	—
Katuura	+0·3	0·7	22	0 23	+ 9	0 33	+ 7	—	—
Kiyosumi	+0·3	0·7	11	0 13	− 1	0 26	0	—	—
Susaki	+0·3	0·8	281	0 20k	+ 4	0 36	+ 8	—	—
Ibo	+0·3	0·9	302	0 17	0	0 32	+ 1	—	—
Kamakura	+0·3	0·9	336	0 16k	− 1	0 31	0	—	—
Misima	+0·3	1·0	305	0 19k	+ 1	0 36	+ 3	—	—
Yokohama	+0·3	1·0	343	0 17k	− 1	0 32	− 1	—	—
Numadu	+0·3	1·1	302	0 20k	0	0 39	+ 3	—	—
Komaba	+0·3	1·2	347	0 19k	− 2	0 37	− 2	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Mitaka		+0·3	1·2	342	0 8?	−13	0 26?	−13	—	—
Tokyo		+0·3	1·2	350	0 19k	− 2	0 37	− 2	—	0·6
Tokyo I.U.		+0·3	1·2	350	0 20k	− 1	0 38	− 1	—	—
Hatidyosima		+0·3	1·4	185	0 24	0	0 41	− 3	—	—
Hunatu		+0·3	1·4	314	0 22k	− 2	0 42	− 2	—	—
Omaesaki		+0·2	1·5	274	0 26k	+ 2	0 47	+ 3	—	—
Tyosi		+0·2	1·5	30	0 21k	− 3	0 39	− 5	—	—
Kakioka		+0·2	1·7	5	0 24k	− 4	0 45	− 4	—	—
Kohu		+0·2	1·7	314	0 26k	− 2	0 48	− 1	—	—
Kumagaya		+0·2	1·7	343	0 26k	− 2	0 49	0	—	—
Tukubasan		+0·2	1·7	3	0 24k	− 4	0 45	− 4	—	—
Hamamatu		+0·2	1·9	277	0 34a	+ 4	0 59	+ 5	—	—
Mito		+0·2	1·9	12	0 31k	+ 1	0 51	− 3	—	—
Iida		+0·2	2·0	300	0 38a	+ 7	1 5	+ 8	—	—
Maebasi		+0·2	2·0	338	0 32k	+ 1	0 54	− 3	—	—
Utunomiya		+0·2	2·1	357	0 29	− 4	1 2	+ 3	—	—
Oiwake		+0·2	2·2	327	0 35a	+ 1	1 1	− 1	—	—
Matumoto		+0·2	2·4	316	0 44a	+ 7	1 11	+ 4	—	—
Nagano		+0·2	2·6	326	0 39a	− 1	1 8	− 4	—	—
Nagoya		+0·2	2·6	285	0 40a	0	1 5	− 7	—	1·4
Onahama		+0·2	2·6	17	0 28	−12	0 55	−17	—	—
Gihu		+0·2	2·8	289	0 44a	+ 1	1 23	+ 6	—	—
Takayama		+0·2	2·8	306	0 42	− 1	1 18	+ 1	—	—
Tu		+0·2	2·8	275	0 49k	+ 6	1 26	+ 9	—	—
Kameyama		+0·1	2·9	277	0 46a	+ 3	1 24	+ 7	—	—
Takada		+0·1	3·0	331	0 43	− 1	1 21	+ 1	—	—
Hikone		+0·1	3·2	284	0 51	+ 4	1 42	+17	—	—
Toyama		+0·1	3·2	314	0 47	0	1 21	− 4	—	—
Hukusima		+0·1	3·3	7	0 42k	− 7	1 22	− 5	—	—
Husiki		+0·1	3·3	315	0 55	+ 6	1 34	+ 7	—	—
Kanazawa		+0·1	3·4	307	0 51	+ 1	1 29	− 1	—	—
Yagi		+0·1	3·4	272	0 52a	+ 2	1 35	+ 5	—	—
Kyoto		+0·1	3·5	280	0 54a	+ 3	1 48	+16	—	—
Niigata		+0·1	3·5	349	1 3	+12	1 35	+ 3	—	—
Siomisaki		+0·1	3·6	254	0 55a	+ 2	1 40	+ 5	—	—
Osaka		+0·1	3·7	274	0 56	+ 2	1 51	+14	—	—
Osaka B		+0·1	3·7	274	0 56a	+ 2	—	—	—	—
Wazima		+0·1	3·8	318	0 55a	− 1	1 39	− 1	—	—
Yamagata		+0·1	3·8	5	0 51	− 5	1 36	− 4	—	—
Sendai		+0·1	3·9	10	0 51	− 6	1 32	−10	—	—
Kobe		+0·1	4·0	274	0 59a	+ 1	i 1 46	+ 1	—	2·0
Miyadu		+0·1	4·0	285	1 0a	+ 2	1 53	+ 8	—	—
Wakayama		+0·1	4·0	269	1 1a	+ 3	1 46	+ 1	—	—
Sumoto		+0·1	4·2	269	i 1 2a	+ 1	i 2 2	+12	—	2·1
Toyooka		0·0	4·3	285	1 3a	+ 2	2 16	+26	—	2·4
Mizusawa	N.	0·0	4·8	11	e 1 4	− 4	i 1 53	−10	—	—
Okayama		0·0	4·9	274	1 12a	+ 2	2 43	+38	—	—
Muroto		0·0	5·0	257	1 14a	+ 3	2 14	+ 6	—	—
Tadotu		0·0	5·1	269	1 22a	+ 9	2 20	+10	—	—
Akita		0·0	5·2	1	0 33	−41	1 20	−53	—	—
Morioka		0·0	5·3	10	1 9	− 6	2 6	− 9	—	—
Koti		0·0	5·4	262	1 20a	+ 3	2 33	+15	—	—
Sakai		0·0	5·6	282	1 23k	+ 3	2 53	+30	—	—
Matuyama		0·0	6·0	266	1 25a	0	2 59	+26	—	—
Hatinoke		0·0	6·2	11	1 13	−15	2 17	−21	—	—
Hirosima		0·0	6·2	270	1 31a	+ 3	3 7	+29	—	—
Aomori		0·0	6·4	5	1 28	− 3	2 40	− 3	—	—
Hamada		0·0	6·5	276	1 35a	+ 3	3 16	+30	—	—
Ooita		−0·1	7·0	262	1 41	+ 3	3 45	+49	—	—
Hakodate		−0·1	7·3	4	2 3	+21	3 38	+34	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Simonoseki		−0·1	7·5	268	1 46a	+ 1	—	—	—	—
Miyazaki		−0·1	7·6	253	1 50a	+ 4	3 19	+ 8	—	—
Titizima		−0·1	7·6	166	1 43	− 3	—	—	—	—
Kumamoto		−0·1	7·9	260	1 54a	+ 3	—	—	—	—
Muroran		−0·1	7·9	5	1 45	− 6	—	—	—	—
Hukuoka		−0·1	8·0	266	1 49	− 3	3 38	+17	—	—
Hukuoka B		−0·1	8·0	266	i 1 55a	+ 3	e 3 33	+12	—	—
Urakawa		−0·1	8·0	15	1 41	−11	3 14	− 7	—	—
Saga		−0·1	8·1	263	1 56	+ 3	3 51	+27	—	—
Unzendake		−0·1	8·3	261	2 3	+ 7	4 23	+54	—	—
Kagosima		−0·1	8·4	252	2 2	+ 4	—	—	—	—
Nagasaki		−0·1	8·6	261	2 4a	+ 4	3 51	+15	—	—
Sapporo		−0·1	8·7	6	2 3	+ 1	3 55	+16	—	—
Obihiro		−0·1	8·8	16	1 54	− 9	3 24	−17	—	—
Husan		−0·1	9·0	277	e 2 10	+ 4	e 4 21	+35	—	—
Taikyu		−0·1	9·4	282	i 2 13a	+ 2	e 4 9	+13	—	—
Asahigawa		−0·1	9·5	11	2 12	− 1	3 48	−11	—	—
Tomie		−0·1	9·5	262	2 16	+ 3	4 6	+ 7	—	—
Vladivostok		−0·2	10·6	326	i 2 26	0	i 4 26	+ 3	4·8	7·8
Nake		−0·2	10·8	238	2 39	+10	—	—	—	—
Kełzyo		−0·2	10·9	290	e 2 34	+ 3	e 4 45	+14	—	—
Zinsen		−0·2	11·2	290	e 2 39	+ 4	e 4 49	+11	—	—
Heizyo		−0·2	12·2	296	e −1 22	?	e 1 21	?	2·9	—
Zi-ka-wei	Z.	−0·3	15·9	264	i 3 37k	+ 1	6 43	+14	9·8	11·1
Isigakizima		−0·4	17·1	238	3 23	−27	—	—	—	—
Nanking	E.	−0·4	17·9	268	4 0	0	e 7 52	+39	—	—
Chiufeng		−0·5	19·7	293	i 4 17a	− 4	7 53	+ 3	9·0	12·2
Taito		−0·5	20·2	240	5 15	+49	—	—	—	—
Kosyun		−0·5	21·0	240	4 39	+ 4	—	—	—	—
Hong Kong		−0·7	25·7	249	5 51	PP	9 55	+14	12·6	17·7
Manila		−0·7	26·3	225	5 43	+18	10 17	+26	12·3	—
Calcutta	N.	−1·2	46·4	270	e 10 37	PPPP	—	—	—	—
Frunse		−1·3	50·5	300	e 8 43	− 2	e 16 27	+37	—	—
Andijan		−1·4	52·6	299	e 8 37	−23	—	—	—	—
Tchimkent		−1·4	54·2	301	e 9 16	+ 4	e 16 46	+ 7	—	—
Tashkent		−1·4	54·7	300	i 9 18	+ 2	i 16 50	+ 4	e 28·2	35·4
Sverdlovsk		−1·4	56·1	320	i 9 38	+12	i 17 20	+15	26·5	—
Bombay		−1·5	61·0	274	e 10 0	− 1	i 18 12	+ 3	—	—
Moscow		−1·6	68·4	324	10 51	0	19 38	− 4	35·0	38·1
Baku		−1·6	68·6	306	e 11 45	+53	i 19 51	+ 6	e 33·5	—
Pulkovo		−1·6	69·5	330	10 58	0	e 19 28	−28	—	—
Grozny		−1·6	69·9	310	11 4	+ 4	20 5	+ 4	—	—
Tiflis		−1·6	71·3	309	e 11 8	− 1	i 20 18	0	37·5	45·4
Erevan		−1·6	72·2	308	e 11 20	+ 6	—	—	—	—
Sotchi		−1·7	73·5	313	e 11 12	−10	—	—	—	—
Berkeley		−1·7	74·9	55	i 11 28	− 2	—	—	—	—
Branner		−1·7	75·2	56	e 11 30	− 2	—	—	—	—
Theodosia		−1·7	75·3	316	e 11 34	+ 2	—	—	—	—
Lick		−1·7	75·6	55	e 11 33	− 1	—	—	—	—
Simferopol		−1·7	76·1	317	e 12 2	+25	e 21 12	− 1	—	—
Yalta		−1·7	76·3	316	e 11 37	− 1	—	—	—	—
Fresno	N.	−1·7	77·2	55	e 11 43	0	—	—	—	—
Tinemaha	N.	−1·7	78·0	54	i 11 46	− 2	—	—	—	—
Santa Barbara		−1·7	78·5	57	i 11 49	− 1	—	—	—	—
Haiwee		−1·7	78·7	54	e 11 51	− 1	—	—	—	—
Copenhagen		−1·7	79·4	334	11 56	0	—	—	41·5	—
Mount Wilson		−1·7	79·8	56	i 11 56k	− 2	—	—	—	—
Pasadena		−1·7	79·8	56	i 11 55k	− 3	—	—	—	—
Riverside		−1·7	80·4	56	e 11 57	− 4	—	—	—	—
La Jolla		−1·7	81·1	57	i 12 2	− 3	—	—	—	—
Ksara		−1·7	81·5	304	e 12 6	− 1	e 22 8	− 6	—	—
Tucson		−1·7	85·8	54	i 12 26	− 3	e 24 0	+61	e 36·0	—
La Paz	N.	—	149·0	62	20 26	[+46]	—	—	—	—

For Notes see next page.

NOTES TO OCT. 25d. 15h. 30m. 30s.

Additional readings :—
Kobe iPENZ = +1m.0s., iE = +1m.37s., iN = +1m.41s., iSN = +1m.49s.
Toyooka SE = +2m.22s.
Nanking eN = +8m.34s.
Chiufeng ipP = +4m.37s., isSE = +8m.37s.
Hong Kong PP? = +6m.5s., SS? = +10m.46s.
Tchimkent e = +15m.53s.
Pulkovo e = +17m.22s.
Tiflis ePPZ = +13m.50s., PSE = +21m.0s., SSSE = +28m.21s., e = +31m.41s.
Branner iE = +11m.42s., iE = +11m.51s., eE = +12m.0s., eN = +12m.3s., iEN = +12m.11s., eE = +12m.33s.
Ksara epP = +12m.32s., esP = +12m.44s., esS = +22m.49s., ePKPPKP = +38m.38s.

Oct. 25d. Readings also at 3h. (Samarkand), 4h. (near Berkeley and near Nagoya), 8h. (Tiflis, Ksara, and Chur), 9h. (Mizusawa), 11h. (Kobe, Mizusawa, Chiufeng, Vladivostok, Tashkent, Sverdlovsk, Tiflis (2), and Ksara), 13h. (Samarkand, Tashkent, Tchimkent, near Andijan, and Frunse), 15h. (Paris and near Tokyo), 16h. (near Branner), 21h. (College and San Juan).

Oct. 26d. 9h. 33m. 33s. Epicentre 34°·5N. 136°·3E. N.1.
(as given by Japanese stations).

$A = -\cdot5958$, $B = +\cdot5694$, $C = +\cdot5664$; $\delta = 0$;
$D = +\cdot691$, $E = +\cdot723$; $G = -\cdot409$, $H = +\cdot391$, $K = -\cdot824$.

Correction for depth for focus 0·060 has been applied.

	Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Tu	+2·5	0·3	37	0 48	+ 8	1 22	+10	—	—
Kameyama	+2·4	0·4	21	0 45k	+ 5	1 20	+ 8	—	—
Yagi	+2·4	0·4	272	0 44	+ 4	1 18	+ 6	—	—
Kyoto	+2·3	0·7	318	0 46	+ 3	1 21	+ 4	—	—
Osaka	+2·3	0·7	283	0 46	+ 3	1 18	+ 1	—	—
Osaka B	+2·3	0·7	283	0 46	+ 3	1 20	+ 3	—	—
Hikone	+2·3	0·8	357	0 44k	0	1 18	− 2	—	—
Ibukisan	+2·2	0·9	4	0 52k	+ 8	1 24	+ 4	—	—
Nagoya	+2·2	0·9	39	i 0 46k	+ 2	i 1 22	+ 2	—	1·4
Gihu	+2·2	1·0	23	0 47k	+ 1	1 22	0	—	—
Kobe	+2·2	1·0	281	0 46a	0	i 1 22	0	—	3·0
Wakayama	+2·2	1·0	254	0 46a	0	1 22	0	—	—
Siomisaki	+2·1	1·1	203	0 47a	+ 1	1 24	+ 2	—	—
Hamamatu	+2·1	1·2	79	0 47k	0	1 24	− 1	—	—
Sumoto	+2·1	1·2	263	i 0 46a	− 1	i 1 20	− 5	—	1·4
Miyadu	+2·0	1·4	319	0 46	− 3	1 25	− 2	—	—
Iida	+1·9	1·6	51	0 49	− 1	1 28	− 2	—	—
Toyooka	+1·9	1·6	310	0 49	− 1	1 28	− 2	—	2·0
Takayama	+1·8	1·8	25	0 50	− 1	1 32	0	—	—
Kanazawa	+1·8	2·0	8	0 55	+ 1	1 33	− 4	—	—
Okayama	+1·8	2·0	275	0 53	− 1	1 33	− 4	—	—
Tadotu	+1·7	2·1	264	0 52a	− 2	1 34	− 3	—	—
Kohu	+1·7	2·2	59	0 54k	− 2	1 36	− 4	—	—
Matumoto	+1·7	2·2	38	1 2	+ 6	1 47	+ 7	—	—
Muroto	+1·7	2·2	235	0 52a	− 4	1 33	− 7	—	—
Numadu	+1·7	2·2	74	0 55	− 1	—	—	—	—
Misima	+1·6	2·3	74	0 53k	− 3	1 39	− 1	—	—
Husiki	+1·6	2·4	15	0 56	− 1	1 40	− 2	—	—
Koti	+1·5	2·5	248	0 55a	− 2	1 39	− 3	—	—
Nagano	+1·5	2·6	35	0 57k	− 1	1 43	− 2	—	—
Oiwake	+1·5	2·6	45	0 55k	− 3	1 40	− 5	—	—
Sakai	+1·4	2·8	293	0 57	− 3	1 43	− 5	—	—
Maebasi	+1·4	2·9	50	0 59k	− 2	1 41	− 9	—	—
Mera	+1·4	2·9	82	0 58	− 3	1 29	−21	—	—
Wazima	+1·4	2·9	10	0 59k	− 2	1 46	− 4	—	—
Yokohama	+1·4	2·9	71	0 57k	− 4	1 43	− 7	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Kumagaya		+1·3	3·0	57	0 58	− 3	1 45	− 5	—	—
Matuyama		+1·3	3·0	257	0 59a	− 2	1 47	− 3	—	—
Takada		+1·3	3·0	31	1 0	− 1	1 49	− 1	—	—
Tokyo		+1·3	3·0	67	0 59k	− 2	1 46	− 4	—	—
Hatidyozima		+1·3	3·2	115	1 2k	− 2	1 53	− 2	—	—
Simidu		+1·2	3·3	238	1 1a	− 3	1 52	− 3	—	—
Hamada		+1·1	3·5	278	1 13	+ 7	2 4	+ 6	—	—
Tukubasan		+1·1	3·5	60	1 3k	− 3	1 53	− 5	—	—
Utunomiya		+1·1	3·5	53	1 3	− 3	1 53	− 5	—	—
Kakioka		+1·1	3·6	61	1 3k	− 4	1 54	− 6	—	—
Mito		+1·0	3·9	60	1 7k	− 3	1 56	− 9	—	—
Tyosi		+1·0	3·9	71	1 7	− 3	1 33	−32	—	—
Ooita		+0·9	4·1	253	1 10	− 1	2 6	− 2	—	—
Onahama		+0·8	4·4	55	1 6	− 8	2 2	−11	—	—
Simonoseki		+0·7	4·5	264	1 15	+ 1	2 13	0	—	—
Hukusima		+0·6	4·7	45	1 11k	− 4	2 13	− 2	—	—
Miyazaki		+0·6	4·8	239	1 18	+ 1	—	—	—	—
Hukuoka		+0·5	5·0	261	i 1 19a	+ 1	i 2 22	+ 2	—	2·5
Hukuoka B		+0·5	5·0	261	1 19	+ 1	i 2 24	+ 4	—	2·4
Kumamoto		+0·5	5·0	252	1 20a	+ 2	2 16	− 4	—	—
Yamagata		+0·5	5·0	40	1 19	+ 1	2 21	+ 1	—	—
Saga		+0·5	5·2	257	1 20	− 1	2 20	− 5	—	—
Unzendake		+0·4	5·3	252	1 21a	0	2 28	+ 3	—	—
Isinomaki		+0·4	5·6	44	1 23	− 2	2 28	− 5	—	—
Kagosima		+0·4	5·6	241	1 28	+ 3	—	—	—	—
Nagasaki		+0·4	5·6	254	1 27	+ 2	2 38	+ 5	—	—
Ituhara		+0·3	5·8	266	1 30	+ 3	2 40	+ 4	—	—
Husan		+0·3	6·0	278	1 31	+ 1	2 45	+ 4	—	—
Mizusawa		+0·3	6·0	39	i 1 32	+ 2	i 2 39	− 2	—	—
Taikyu		+0·2	6·4	284	i 1 37	+ 3	i 2 54	+ 6	—	—
Tomie		+0·1	6·6	256	1 39	+ 4	2 56	+ 5	—	—
Aomori		0·0	7·2	28	1 44	+ 2	3 5	+ 1	—	—
Hatinohe		−0·1	7·3	33	2 44	+62	4 3	+59	—	—
Keizyo		−0·3	8·2	295	e 1 56	+ 4	i 3 31	+10	—	—
Nake		−0·3	8·4	225	1 59a	+ 4	3 35	+ 9	—	—
Zinsen		−0·3	8·4	294	i 1 59k	+ 4	i 3 34	+ 8	—	—
Urakawa		−0·5	9·2	31	2 4	+ 1	3 49	+ 8	—	—
Vladivostok		−0·5	9·3	338	i 2 6	+ 1	i 3 52	+ 8	5·8	12·0
Heizyo	E.	−0·6	9·6	302	i 2 15k	+ 8	i 4 3	+14	—	—
Obihiro		−0·7	10·0	31	2 19	+ 8	3 56	0	—	—
Asahigawa		−0·7	10·4	25	2 32	+15	4 16	+10	—	—
Nemuro		−1·0	11·4	37	2 34	+ 8	4 32	+ 9	—	—
Zi-ka-wei	Z.	−1·2	12·9	259	2 49	+ 5	5 1	+ 6	—	7·9
Isigakizima		−1·5	14·6	229	3 4	+ 1	—	—	—	—
Nanking		−1·6	14·8	266	i 3 11	+ 6	6 13	+41	7·5	—
Chiufeng		−2·0	17·0	295	i 3 32k	+ 4	6 29	+14	—	—
Taito		−2·0	17·7	232	3 40	+ 2	6 42	+11	—	—
Hong Kong		−2·8	22·9	245	4 32	+ 1	8 21	+13	10·0	11·6
Manila		−3·0	24·2	219	e 4 44	+ 2	9 44	+74	13·3	—
Phu-Lien		−3·6	29·5	251	e 5 31	+ 3	11 32	SSSS	—	—
Batavia		−5·5	49·3	221	i 8 8k	+ 5	i 14 44	+11	—	—
Tashkent		−5·7	52·0	299	—	—	i 15 26	+17	—	—
Sverdlovsk		−5·8	54·1	320	e 9 0	+22	i 16 8	+31	26·5	—
Baku		−6·6	66·1	304	—	—	e 18 28	+19	e 36·5	—
Tiflis		−6·7	68·9	308	e 10 28	+ 8	i 19 1	+16	e 29·0	—
Ksara		−7·2	79·0	304	i 11 25	+ 3	i 20 55	+12	—	—
Tinemaha	N.	−7·2	80·4	52	e 11 33	+ 3	—	—	—	—
Santa Barbara		−7·2	81·0	55	e 11 35	+ 2	—	—	—	—
Haiwee	N.	−7·2	81·1	52	e 11 48	+14	—	—	—	—
Mount Wilson	Z.	−7·3	82·2	54	i 11 42a	+ 2	—	—	—	—
Pasadena	Z.	−7·3	82·2	54	i 11 41a	+ 1	—	—	—	—
Tucson		−7·5	88·1	51	e 12 12	+ 1	—	—	—	—

For Notes see next page.

Notes to Oct. 26d. 9h. 33m. 33s.

Additional readings :—
Mizusawa iSE = +2m.42s.
Chiufeng ipP = +4m.54s., iEZ = +5m.8s.
Tashkent e = +15m.28s., i = +17m.42s., i = +21m.27s., e = +23m.22s.
Tiflis SKSE = +20m.23s., SSEN = +23m.30s.
Ksara pP = +11m.55s., esS = +21m.43s.
Mount Wilson eZ = +14m.55s.

Oct. 26d. 10h. 2m. 37s. Epicentre 29°·2N. 131°·3E. (as on 1934 Oct. 26d.). X.

A = −·5761, B = +·6558, C = +·4879 ; δ = +1 ;
D = +·751, E = +·660 ; G = −·322, H = +·367, K = −·873.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hukuoka		4·4	350	0 53	−10	1 34	−19	—	—
Hukuoka B		4·4	350	1 1	− 2	1 41	−12	—	—
Sumoto		6·0	30	1 28	+ 3	2 52	S*	—	3·3
Husan		6·2	342	e 1 31	+ 3	e 2 37	− 1	—	—
Kobe		6·4	29	e 1 32	+ 1	e 3 15	S*	—	—
Taikyu	N.	7·0	343	e 1 37	− 2	e 2 53	− 6	—	—
Toyooka		7·0	25	1 38	− 1	3 28	S*	—	—
Zi-ka-wei	Z.	8·8	285	—	—	e 3 23	−21	—	7·8
Keizyo		9·1	338	e 2 10	+ 1	e 3 51	0	—	—
Zinsen		9·2	335	—	—	e 4 0	+ 6	—	—
Nanking		11·1	288	2 30	− 6	—	—	e 5·6	7·6
Vladivostok		13·9	2	e 2 57	−17	—	—	8·0	11·6
Chiufeng		16·5	315	3 37a	−11	—	—	—	10·3
Sverdlovsk		55·5	322	—	—	e 16 56	−20	28·4	—

Additional readings :—
Sumoto ePZ = +1m.30s., SE = +3m.7s.
Kobe eE = +1m.47s. and +3m.21s.
Chiufeng ePN = +3m.46s.
Long waves were also recorded at Hong Kong, Phu-Lien, and Tiflis.

Oct. 26d. 19h. 32m. 6s. Epicentre 0°·2S. 98°·8E. (as on 1936 June 9d.). R.1.

A = −·1530, B = +·9882, C = −·0035 ; δ = −4 ;
D = +·988, E = +·153 ; G = +·001, H = −·003, K = −1·000.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Medan		3·8	359	i 0 54	0	—	—	—	—
Soengi Langka		8·3	129	i 1 52	− 6	i 3 56	S*	—	—
Batavia		10·0	127	i 2 14	− 7	i 5 6	S*	—	—
Malabar		11·2	129	i 2 41	+ 4	i 4 52	+ 9	—	—
Colombo		20·2	291	4 44	PP	8 43	+33	10·9	12·6
Phu-Lien		22·4	20	e 4 47	− 8	e 8 47	− 6	10·9	13·0
Kodaikanal	E.	23·6	298	i 5 19	+13	i 9 48	SS	i 13·9	16·1
Calcutta	N.	24·9	337	5 23	+ 4	9 41	+ 2	e 12·0	22·5
Manila		26·5	55	5 30	− 4	9 52	−15	—	—
Hyderabad		26·7	313	5 35	0	10 5	− 5	13·9	18·2
Hong Kong		27·0	33	5 39a	+ 1	10 12	− 3	12·8	15·5
Bombay		31·9	308	6 29	+ 7	i 11 45	+11	15·9	20·6
Agra	E.	33·9	326	e 6 43	+ 4	i 12 2	− 2	16·1	—
Perth		35·6	155	8 1	PP	12 44	+14	17·1	21·9
Nanking		37·4	29	8 36	PP	12 44	−13	16·6	22·4
Zi-ka-wei	Z.	38·0	32	e 7 3	−12	—	—	21·7	25·9
Chiufeng		43·2	19	i 7 54k	− 4	14 12	−12	18·5	26·9
Hukuoka B		45·0	39	e 18 4	S_cS	—	—	—	—
Husan		45·2	35	—	—	e 18 15	S_cS	—	—
Taikyu		45·3	34	—	—	e 17 12	SS	—	—
Zinsen	N.	45·6	31	—	—	e 16 41	?	e 23·0	—
Keizyo		45·8	32	e 18 19	S_cS	e 21 43	?	e 24·1	25·8
Heizyo		46·4	32	—	—	i 18 5	S_cS	23·7	—
Andijan		47·5	333	e 8 33	+ 1	15 29	+ 3	27·9	—
Frunse		48·3	336	e 8 40	+ 2	e 15 34	− 2	23·7	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Samarkand		49·3	327	e 8 48	+ 2	15 50	− 1	25·4	—
Tashkent		49·4	331	i 8 47	0	i 15 53	+ 1	e 22·7	26·4
Tchimkent		50·0	332	8 57	+ 6	16 3	+ 2	25·4	—
Adelaide		50·9	138	e 12 47	?	e 15 16	−57	—	33·3
Vladivostok		52·5	31	e 8 56	−14	e 16 28	− 7	27·6	35·4
Melbourne		56·7	137	—	—	e 17 31	− 1	27·1	40·2
Riverview		59·4	130	—	—	e 17 30	−38	e 26·6	34·0
Sydney		59·4	130	e 15 6	?	i 33 14	?	39·4	40·9
Baku		60·1	319	10 9	+ 4	18 24	+ 7	27·9	39·5
Erevan		63·7	317	e 10 34	+ 4	—	—	—	—
Tiflis		64·1	318	10 33	0	e 19 0	− 9	e 29·4	45·8
Grozny		64·2	320	e 10 34	0	—	—	36·9	—
Sverdlovsk		64·7	338	e 10 44	+ 7	i 19 22	+ 6	29·8	34·1
Ksara		67·9	306	i 11 1a	+ 3	20 7	+11	32·4	38·2
Sotchi		68·3	319	—	—	e 20 0	− 1	—	—
Helwan		70·7	302	e 11 14	− 1	20 36	+ 6	—	41·2
Theodosia		71·7	318	e 11 15	− 6	20 38	− 3	—	—
Yalta		72·4	317	e 11 21	− 4	20 46	− 4	—	—
Simferopol		72·5	318	e 11 24	− 2	e 20 50	− 1	—	—
Sebastopol		72·8	317	e 11 28	0	e 20 54	0	—	—
Moscow		74·4	330	11 38	+ 1	e 21 9	− 4	36·0	49·3
Christchurch		78·2	135	e 11 23a	−35	21 47	− 9	40·0	46·1
Pulkovo		79·5	332	12 6	+ 1	22 5	− 5	38·9	48·4
Cape Town		81·9	236	—	—	e 22 49	+13	34·8	51·8
Vienna		85·1	318	e 12 34	0	e 23 6	− 3	—	—
Zagreb		85·1	316	—	—	e 23 36	+27	—	—
Cheb		87·9	320	e 12 54?	+ 7	e 23 16	[− 3]	e 47·9	61·9
Copenhagen		88·1	326	—	—	23 36	− 2	45·9	—
Chur		89·6	317	e 12 58	+ 2	—	—	—	—
Stuttgart		89·9	319	—	—	e 35 54?	SSSS	e 49·9	—
Zurich		90·3	317	e 12 18	−41	—	—	—	—
De Bilt		92·4	323	—	—	e 24 54?	+36	e 42·9	61·7
Pasadena		131·5	42	e 19 11	[+ 2]	—	—	e 72·9	—
Mount Wilson	z.	131·6	42	i 19 14	[+ 4]	—	—	—	—
Rio de Janeiro		136·5	237	—	—	35 54?	?	—	—
Tucson		137·5	38	e 19 12	[− 6]	—	—	e 66·0	—
Philadelphia		139·9	352	—	—	e 41 2	SS	e 62·2	—
San Juan		156·5	322	e 22 49	PP?	—	—	e 76·8	—
Huancayo		166·4	205	—	—	e 31 16	{−37}	e 81·2	—

Additional readings :—
Batavia PEN = +2m.16s., iEN = +5m.19s., iN = +5m.30s., iEN = +5m.38s.
Malabar i = +5m.56s.
Calcutta PPN = +5m.52s., SSN = +10m.39s
Hong Kong PP = +6m.4s., P_cP = +9m.13s., ? = +10m.24s., SS = +11m.4s., S_cS? = +16m.26s.
Bombay SSEN = +13m.16s.
Agra SSE = +13m.53s.
Perth PP = +8m.14s., PPP = +12m.9s., P_cS = +13m.54s., SS = +15m.4s., SSS = +15m.29s.
Chiufeng PPNZ = +9m.40s.
Hukuoka B eS? = +27m.34s.
Vladivostok PP = +11m.9s., eSS = +20m.24s., eSSS = +22m.0s.
Sydney eP = +25m.24s.
Tiflis eP_cPN = +11m.20s., ePPZ = +13m.28s., eE = +15m.6s., ePSE = +19m.10s., eSKSN = +20m.12s., eE = +20m.35s., eSSN = +23m.34s.
Ksara PPP = +15m.4s., PS = +20m.38s.
Christchurch eGN = +34m.39s.
Cape Town eE = +24m.14s.
Copenhagen =24m.36s.
Pasadena eZ = +22m.30s. =PKS −10s.
Mount Wilson eZ = +22m.30s. =PKS −10s.
Tucson eSKP = +22m.52s.
Philadelphia eSSS = +45m.16s.
San Juan ePPS = +37m.6s.
Huancayo eSKS = +26m.59s., e = +29m.38s., and +33m.0s., eSS = +46m.43s.
Long waves were also recorded at Arapuni, Wellington, Kobe, Scoresby Sund, and other American and European stations.

Oct. 26d. 23h. 5m. 46s. Epicentre 71°·0N. 6°·0W. (as on 1929 June 27d.). R.1.

$A = +·3238$, $B = -·0340$, $C = +·9455$; $\delta = -3$;
$D = -·105$, $E = -·995$; $G = +·940$, $H = -·099$, $K = -·326$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Scoresby Sund		5·3	273	i 1 12a	− 3	e 1 49	−26	i 2·0	—
Reykjavik		9·1	229	e 2 41	+32	3 53	+ 2	—	—
Bergen		11·5	150	i 2 38a	− 4	e 4 14?	−36	7·7	9·6
Upsala		14·7	127	i 3 21	− 4	i 6 2	− 6	e 6·6	8·1
Edinburgh		15·2	174	—	—	i 6 36	+16	—	10·6
Durham		16·3	171	—	—	7 1	+16	—	12·2
Copenhagen		17·2	143	i 3 58	+ 1	e 7 17	+11	8·2	—
Bidston		17·7	174	i 4 11	+ 8	e 7 31	+14	8·2	10·5
Rathfarnham Castle		17·7	180	i 4 34	+31	i 8 11	+54	8·9	14·7
Pulkovo		18·4	109	4 11	0	7 30	− 3	9·0	10·0
Hamburg		18·8	149	4 20	+ 4	7 53	+11	9·6	12·2
Ivigtut		19·1	262	i 4 12k	− 8	7 50	+ 2	9·2	—
De Bilt		19·6	159	4 25	0	8 8	+10	9·2	17·0
Kew		19·7	169	i 4 32k	+ 6	e 8 20	+20	9·2	15·5
Uccle		20·7	161	i 4 39	+ 2	i 8 32	+12	10·2	—
Göttingen		20·8	152	i 4 39k	+ 1	e 8 37	+15	14·2	16·4
Jena	E.	21·6	148	e 4 44	− 2	e 8 49	+11	e 12·7	14·2
	N.	21·6	148	e 4 47	+ 1	e 8 57	+19	e 13·2	14·7
	Z.	21·6	148	e 4 45	− 1	e 8 56	+18	e 13·2	14·7
Jersey		21·9	173	i 4 56	+ 6	8 50	+ 6	10·9	14·8
Paris		22·5	165	e 4 54	− 2	9 2	+ 7	10·2	17·2
Cheb		22·6	148	e 4 54	− 3	e 9 5	+ 8	e 13·2	15·7
Prague		23·0	144	e 4 58	− 3	e 9 13	+ 8	10·2	14·2
Strasbourg		23·3	156	e 5 5	+ 1	i 9 23	+13	e 11·2	19·2
Stuttgart		23·3	154	e 5 4k	0	i 9 22	+12	e 11·1	16·2
Moscow		23·9	106	e 5 13	+ 4	e 9 30	+ 9	11·3	12·4
Basle		24·3	157	e 5 12	− 1	—	—	—	—
Zurich		24·6	156	e 5 14	− 2	—	—	—	—
Vienna		25·1	143	e 5 21	0	9 37	− 6	e 12·7	15·7
Chur		25·3	156	e 5 21	− 2	—	—	—	—
Lemberg		25·3	130	e 6 50	?	—	—	13·9	14·3
Graz		26·0	145	e 5 28	− 1	e 10 4	+ 6	e 13·2	15·6
Budapest		26·3	139	5 39	+ 7	e 10 34	+31	15·2	16·2
Zagreb		27·3	144	e 5 41	0	e 10 14?	− 6	—	14·5
Florence		28·5	153	5 17	−35	9 14	−86	—	—
Belgrade		29·2	139	e 4 50	−68	e 11 37	+46	e 16·6	—
Sverdlovsk		30·4	82	i 6 23	+14	11 28	+18	i 14·6	16·2
Tortosa	E.	30·4	170	e 6 20	+11	e 10 9	−61	e 15·2	19·3
	N.	30·4	170	e 6 12	+ 3	e 10 14	−56	e 15·2	21·5
Toledo		31·1	177	i 6 16	+ 1	11 33	+12	e 15·3	19·7
Sofia		31·8	137	e 6 25	+ 4	—	—	—	21·7
Simferopol		32·4	121	e 6 30	+ 4	12 49	+68	16·7	—
Sebastopol		32·6	123	e 6 30	+ 2	e 12 52	+67	17·6	—
Theodosia		32·7	119	e 6 31	+ 2	e 12 54	+68	20·2	—
Yalta		32·8	122	e 6 31	+ 1	e 12 54	+66	17·4	—
Almeria		34·2	175	e 6 50	+ 8	—	—	e 17·8	—
Algiers		34·5	167	e 6 44	− 1	e 12 14	0	16·7	20·2
San Fernando		34·5	180	e 6 53	+ 8	i 12 17	+ 3	16·2	—
Sotchi		35·3	115	e 6 58	+ 6	—	—	18·7	—
Piatigorsk		35·8	111	e 6 58	+ 2	e 12 42	+ 9	19·2	—
Grozny		37·3	108	e 7 15	+ 6	—	—	18·7	—
Tiflis		38·5	111	e 7 20	+ 1	13 20	+ 6	17·5	25·6
East Machias		39·0	262	e 8 31	PP	e 13 15	− 6	e 20·6	—
Erevan		39·8	112	e 7 40	+10	—	—	20·2	—
Ottawa		41·2	270	7 42	0	13 50	− 4	e 18·2	—
Baku		41·3	106	e 7 52	+ 9	14 10	+14	20·2	24·2

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
College		41·6	338	e 7 46	+ 1	14 8	+ 8	e 18·7	—
Oak Ridge		42·4	265	—	—	e 14 24	+13	e 19·2	—
Ksara		43·3	126	i 8 2k	+ 3	i 14 46	+21	—	25·2
Philadelphia		45·9	267	e 8 14	− 6	e 14 57	− 6	e 20·5	—
Tchimkent		45·9	86	e 8 25	+ 5	—	—	—	—
Helwan		46·0	133	8 26	+ 5	15 4	0	—	30·2
Ann Arbor		46·6	276	—	—	e 16 8	+55	e 25·9	—
Tashkent		46·7	87	i 8 35	+ 9	i 15 16	+ 2	e 21·4	29·0
Frunse		47·0	81	e 8 39	+10	—	—	23·7	—
Sitka		47·1	326	e 8 14?	−15	e 15 14?	− 6	—	—
Madison		47·7	282	e 8 34	0	e 15 25	− 4	—	—
Andijan		48·2	85	e 8 41	+ 3	—	—	27·2	—
Chicago		48·3	280	e 8 31	− 7	e 15 29	− 8	22·5	—
Florissant		51·9	280	e 9 0	− 6	i 16 22	− 5	e 20·2	—
St. Louis		52·0	280	i 9 6	0	e 15 46	−42	e 25·1	26·4
Columbia		53·2	269	—	—	e 16 39	− 6	e 23·7	—
Little Rock		56·2	280	e 9 32	− 5	e 16 22	−63	e 26·8	33·0
Chiufeng		61·6	48	e 10 17a	+ 1	18 41	+ 4	25·3	34·3
Tinemaha	N.	61·8	303	e 10 12	− 5	—	—	—	—
Vladivostok		62·0	34	e 10 30	+12	—	—	35·8	—
Agra	E.	62·5	85	—	—	i 18 51	+ 3	—	—
Haiwee		62·7	303	e 10 17	− 6	—	—	—	—
San Juan		63·1	248	e 10 2	−24	e 18 50	− 6	e 29·3	—
Tucson		64·3	296	10 26a	− 8	e 19 6	− 5	e 31·7	—
Mount Wilson	Z.	64·5	302	i 10 28	− 7	—	—	—	—
Riverside	Z.	64·5	302	i 10 38	+ 3	—	—	—	—
Pasadena		64·6	302	e 10 27	− 9	—	—	i 26·5	—
Santa Barbara		64·7	303	e 10 30	− 7	—	—	—	—
La Jolla	N.	65·5	301	e 10 31	−11	—	—	—	—
Bombay		68·5	94	e 11 14?	+13	e 20 14?	+11	—	—
Nanking		69·9	48	—	—	e 20 37	+17	i 35·3	—
Calcutta	N.	70·1	78	e 11 20	+ 9	e 20 30	+ 8	—	67·1
Manila		87·2	50	23 29	S	(23 29)	0	—	—
Huancayo		94·9	246	—	—	e 23 53	[− 7]	—	—
La Paz	Z.	97·0	239	e 17 15	PP	—	—	50·2	62·9

Additional readings :—
Edinburgh i = +8m.28s. and +8m.40s.
Copenhagen eSN = +7m.25s.
Bidston iPP = +4m.43s.
Rathfarnham Castle i = +4m.56s.
Hamburg iN = +8m.35s.
Ivigtut +7m.57s.
Kew iPPNZ = +4m.50s., eN = +8m.10s.
Uccle iN = +4m.45s.
Göttingen iPEN = +4m.47s., iSN = +8m.43s.
Jena iPN = +4m.53s., iPZ = +4m.58s., iPN = +5m.1s., eN = +5m.57s.
Jersey i? = +5m.20s.
Strasbourg iZ = +5m.11s., iPPZ = +5m.27s., iPPP = +5m.41s., iSS = +10m.7s.
Stuttgart iPNZ = +5m.8s., eE = iNZ = +5m.25s. = PP − 2s., i = +9m.51s. = SS + 1s.
Basle i = +5m.22s.
Vienna P_cP = +9m.5s.
Budapest iE = +6m.7s., iN = +6m.11s. and +6m.15s., eE = +6m.17s., eN = +6m.41s.
Zagreb e = +5m.49s.
Belgrade eZ = +5m.35s.
Toledo i = +6m.19s.
Tiflis PNZ = +7m.25s., ePP = +8m.48s., eZ = +10m.34s., iSSE = +15m.20s.
East Machias e = +13m.18s., eSS = +16m.2s.
Ottawa PPP = +9m.20s., SSS = +16m.38s.
College P_cP = +9m.25s., eSS = +16m.38s.
Ksara SS = +17m.50s.
Philadelphia iS = +15m.0s., eSS = +18m.2s., eS_cS = +18m.20s., iSSS = +20m.12s.
Ann Arbor e?EN = +21m.38s.
Chicago e = +17m.49s., eSS = +19m.8s.
Florissant iEN = +9m.6s.

Continued on next page.

St. Louis ipPN = +9m.12s., ePPPN = +11m.22s., eE = +16m.11s.
Columbia eSS = +20m.17s.
Little Rock ipPEN = +9m.37s., iN = +10m.17s., eE = +10m.28s., ePPPEN = +11m.34s., eN = +16m.2s.
Chiufeng iPNZ = +10m.22s., SSN = +22m.48s.
Tinemaha eN = +11m.53s.
Agra iE = +25m.41s.
San Juan eSSS = +26m.16s.
Tucson eSS = +23m.16s., eSSS = +25m.44s., e = +29m.44s.
Mount Wilson iZ = +12m.42s. = PP −8s.
Pasadena eZ = +12m.44s. = PP −7s.
Nanking iN = +24m.46s., eN = +28m.20s.
Manila SEN = +25m.29s.
Huancayo e = +38m.44s.
Long waves were also recorded at Stonyhurst, Bagnères, Barcelona, Granada, Seattle, Ukiah, Rio de Janeiro, Cape Town, Phu-Lien, Hong Kong, and Kodaikanal.

Oct. 26d. Readings also at 3h. (Jersey, Sumoto, and near Kobe), 5h. (near Misusawa), 9h. (Chiufeng, Nanking, Hong Kong, Keizyo, Taikyu, Zinsen, near Hukuoka, and Hukuoka B), 12h. (Berkeley, Branner, Fresno, Lick, and San Francisco), 13h. (Ksara, Tiflis, and near Erevan), 16h. (Andijan, Wellington, and near Malabar), 18h. (Arapuni), 20h. (Sotchi).

Oct. 27d. Readings at 0h. (near San Javier), 3h. (near Mizusawa), 4h. (Medan), 5h. (Mizusawa), 7h. (Graz), 11h. (Medan), 12h. (near Tiflis), 13h. (near Amboina) 15h. (near Medan), 16h. (Hastings, near Bunnythorp, Wellington, and near Nagoya), 17h. (near Balboa Heights), 18h. (Sumoto and near Andijan), 22h. (near Berkeley and Branner).

Oct. 28d. Readings at 1h. (Tiflis), 3h. (Medan and Ksara), 5h. (near Nagoya), 9h. (near Santiago), 11h. (Mount Wilson and Pasadena), 12h. (Hastings), 13h. (Nanking), 16h. (Tiflis), 18h. (Wellington), 22h. (Mount Wilson, Pasadena, and near Algiers).

Oct. 29d. 5h. 53m. 7s. Epicentre 7°·5N. 82°·3W. (as on 1933 June 8d.). R.2.

$A = +\cdot1328$, $B = -\cdot9825$, $C = +\cdot1305$; $\delta = -3$;
$D = -\cdot991$, $E = -\cdot134$; $G = +\cdot017$, $H = -\cdot129$, $K = -\cdot991$.

		Δ	Fz.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights		3·1	62	i 0 46	+ 2	i 1 27	+ 7	—	1·6
San Juan		19·1	54	i 4 21	+ 1	7 53	+ 5	—	—
Tacubaya	N.	20·3	308	4 33	0	8 42	+30	—	—
Huancayo		20·7	160	i 4 29a	− 8	8 2	−18	—	—
Columbia		26·5	3	e 9 6	PcP	e 9 58	− 9	e 12·6	—
La Paz	Z.	27·8	150	i 5 39	− 6	i 10 9	−19	11·9	17·6
Little Rock		28·8	17	i 5 20	−34	e 9 59	−46	e 12·9	—
St. Louis		31·9	349	i 6 23	+ 1	i 11 35	+ 1	—	—
Florissant		32·1	349	i 6 26	+ 2	i 11 39	+ 2	e 14·9	—
Philadelphia		33·1	11	i 6 35	+ 2	i 12 0	+ 8	i 15·9	—
Chicago		34·6	353	—	—	e 12 9	− 6	—	—
Ann Arbor		34·8	358	—	—	i 12 29	+11	e 18·6	19·6
Madison		36·1	351	e 6 58	− 1	e 12 40	+ 2	—	—
Tucson		36·3	318	i 7 2a	+ 2	i 12 55	+14	i 18·6	—
Oak Ridge		36·3	13	i 7 3	+ 3	—	—	e 13·9	—
Vermont		37·8	12	—	—	e 13 6	+ 3	—	—
Ottawa		38·3	8	e 7 23	+ 5	e 13 15	+ 4	e 15·9	—
East Machias		39·5	17	e 9 6	PP	e 13 38	+ 9	e 21·9	—
La Jolla		41·1	314	i 7 34	− 7	—	—	—	—
Riverside		41·8	316	e 7 49	+ 2	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mount Wilson		42·4	315	i 7 53a	+ 1	—	—	—	—
Pasadena		42·4	316	i 7 54a	+ 2	i 14 32	+21	e 22·0	—
Haiwee		43·4	317	e 8 1	+ 1	—	—	—	—
Santa Barbara	z.	43·7	314	e 8 3	+ 1	—	—	—	—
Bozeman		45·5	333	—	—	e 15 0	+ 3	e 25·4	—
Branner		46·5	316	e 8 28	+ 3	—	—	—	—
Butte		46·6	332	e 8 23	− 2	e 15 3	−10	e 28·0	—
Berkeley		47·2	317	e 8 30	0	e 15 33	+12	—	—
La Plata		48·3	153	8 35	− 3	15 35	− 2	25·9	—
Ukiah		48·4	318	e 9 53	+74	e 15 53	+15	—	—
Rio de Janeiro	E.	48·8	129	e 9 18	+36	i 16 5	+21	i 19·4	—
	N.	48·8	129	e 9 21	+39	i 16 11	+27	i 19·4	—
College		73·0	337	—	—	e 20 53	− 4	—	—
San Fernando		74·4	54	—	—	23 41	SS	34·9	—
Granada		76·5	53	e 12 3	+14	—	—	—	—
Edinburgh		77·7	35	—	—	e 22 27	+36	—	—
Jersey		77·9	41	—	—	i 22 17	+24	38·3	—
Kew		79·2	39	—	—	e 22 5	− 2	e 33·9	40·1
Paris		81·0	40	—	——	e 22 53?	+27	37·9	41·9
Uccle		82·1	39	e 12 40	+21	e 22 37	− 1	e 33·9	—
De Bilt		82·5	38	i 12 31	+10	e 22 49	+ 7	e 33·9	47·2
Strasbourg		84·4	40	e 12 38	+ 8	e 23 0	− 2	e 28·9	—
Zurich		85·1	43	e 12 42	+ 8	—	—	—	—
Stuttgart		85·3	40	e 12 35	0	e 23 3	[+ 2]	e 39·9	48·9
Chur		85·8	43	e 12 36	− 1	—	—	—	—
Copenhagen		86·5	34	—	—	23 23	+ 1	36·9	—
Cheb		87·2	39	e 12 53?	+ 9	e 23 15	[0]	e 41·9	44·9
Upsala		88·5	30	e 20 53?	PPPP	—	—	e 40·9	—
Pulkovo		94·5	28	e 13 38	+20	e 24 25	−13	42·9	49·3
Christchurch		106·1	227	e 27 49	PS	e 32 13	SS	e 49·2	—
Ksara		108·5	51	e 14 15	− 9	e 25 43	{−14}	—	—
Sverdlovsk		109·1	20	—	—	e 26 28	{+27}	44·9	62·5
Baku		115·0	38	e 19 18	PP	e 29 25	SKSP	e 47·9	63·1
Tashkent		124·7	25	—	—	e 26 49	[+45]	e 54·7	73·1
Nanking		135·6	334	e 23 17	PKS	—	—	e 65·1	78·1

Additional readings :—
San Juan iPP = +4m.34s., iPPP = +5m.18s., i = +5m.43s., SS = +8m.5s.
Huancayo iP = +4m.33s., i = +7m.42s., iSS = +8m.19s.
Columbia e = +10m.14s., eSSS = +11m.59s.
La Paz iSN = +10m.18s.
Little Rock iPPEN = +5m.57s., eN = +6m.6s., eN = +10m.37s.
St. Louis ePPEN = +7m.12s., iEN = +7m.25s., iN = +11m.59s.
Florissant ePPN = +7m.17s., iNZ = +7m.30s., iPPPZ = +7m.38s., ePcPNZ = +9m.21s., eN = +12m.32s., iGN = +13m.1s., iSSN = +13m.27s.
Philadelphia iSS = +14m.10s., i = +14m.37s.
Tucson i = +8m.34s., e = +15m.35s.
Chicago eSS = +14m.47s.
Vermont eSS = +15m.36s.
East Machias eSS = +16m.25s., e = +16m.59s., eSSS = +17m.55s.
La Jolla eZ = +9m.24s.
Mount Wilson eZ = +8m.33s.
Pasadena iZ = +8m.36s., iNZ = +9m.35s.
Santa Barbara eZ = +9m.53s.
Branner eE = +9m.40s., eE = +10m.31s., eN = +10m.40s. =PPP −5s.
Butte e = +13m.30s., S? = +15m.16s., eSS = +18m.27s.
Ukiah e = +13m.59s.
College e = +19m.59s., eSSS = +28m.59s.
Jersey i? = +23m.26s.
Stuttgart ePP = +16m.1s.
Ksara ePS = +27m.45s., PPS = +28m.31s.
Sverdlovsk e = +34m.12s. =SS +6s.
Tashkent e = +33m.52s., +33m.55s., +36m.20s., +39m.41s., and +45m.41s.
Long waves were also recorded at Honolulu, Cape Town, Santiago, Sitka, Scoresby Sund, Hamburg, Stonyhurst, Tiflis, and Vladivostok.

Oct. 29d. 18h. 38m. 52s. Epicentre 13°·7N. 145°·8E. (as on 1931 Oct. 30d.). R.1.

$A = -·8035$, $B = +·5461$, $C = +·2368$; $\delta = -9$;
$D = +·562$, $E = +·827$; $G = -·196$, $H = +·133$, $K = -·972$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Titizima	13·8	346	3 17	+ 4	—	—	—	—
Hatidyozima	20·1	346	4 31	0	8 26	SS	—	—
Naha	21·1	308	4 42	+ 1	8 41	+13	—	—
Nake	21·1	317	4 39	− 2	8 48	SS	—	—
Siomisaki	21·8	337	4 48a	− 1	8 54	+12	—	—
Mera	21·9	347	4 54	+ 4	8 50	+ 6	—	—
Katuura	22·0	347	4 18	−33	—	—	—	—
Ito	22·1	349	4 53	+ 1	—	—	—	—
Muroto	22·2	334	4 51	− 2	9 1	+11	—	—
Okayama	22·2	337	5 8	+15	9 21	SS	—	—
Simidu	22·2	331	4 53	0	9 3	+13	—	—
Hamamatu	22·3	343	4 48	− 6	8 56	+ 4	—	—
Misima	22·3	345	4 53	− 1	—	—	—	—
Numadu	22·3	346	5 0	+ 6	—	—	—	—
Yokosuka	22·3	347	4 45	− 9	—	—	—	—
Yokohama	22·4	347	4 55	0	9 3	+10	—	—
Miyazaki	22·5	327	4 54a	− 2	9 3	+ 8	—	—
Tyosi	22·5	350	5 2	+ 6	9 4	+ 9	—	—
Tokyo	22·6	347	4 55	− 2	—	—	—	—
Tu	22·6	340	5 4	+ 7	9 15	+18	—	—
Hunatu	22·7	346	4 59	+ 1	9 9	+10	—	—
Kagosima	22·7	324	4 58	0	—	—	—	—
Koti	22·7	333	4 58	0	—	—	—	—
Wakayama	22·7	337	4 56	− 2	9 3	+ 4	—	—
Yagi	22·7	388	4 55	− 3	—	—	—	—
Kameyama	22·8	340	4 57	− 2	—	—	—	—
Tokusima	22·8	336	5 1	+ 2	9 9	+ 8	—	—
Kohu	22·9	346	5 4	+ 4	9 25	+22	—	—
Nagoya	22·9	341	e 5 1	+ 1	e 9 11	+ 8	—	—
Osaka	22·9	338	4 57	− 3	9 18	+15	—	—
Osaka B	22·9	338	4 57	− 3	—	—	—	—
Sumoto	22·9	336	4 58	− 2	9 10	+ 7	e 11·9	15·1
Iida	23·0	345	5 3	+ 2	—	—	—	—
Isigakizima	23·0	302	4 59	− 2	—	—	—	—
Kobe	23·1	337	4 55	− 7	9 9	+ 2	16·2	—
Tukubasan	23·1	349	5 4a	+ 2	9 16	+ 9	—	—
Gihu	23·2	341	5 4	+ 1	9 7	− 1	—	—
Hikone	23·2	340	5 7	+ 4	—	—	—	—
Kumagaya	23·2	348	5 3	0	9 30	+22	—	—
Kyoto	23·2	340	5 7	+ 4	9 24	+16	—	—
Mito	23·2	349	5 5	+ 2	9 11	+ 3	—	—
Matuyama	23·3	334	5 3	− 1	—	—	—	—
Tadotu	23·3	337	5 2a.	− 2	—	—	—	—
Ooita	23·4	328	5 18	+13	9 47	+35	—	—
Maebasi	23·5	348	5 8	+ 3	9 33	+19	—	—
Kumamoto	23·6	328	5 4	− 2	—	—	—	—
Matumoto	23·6	343	5 22	+16	9 42	+26	—	—
Oiwake	23·6	345	5 8	+ 2	9 14	− 2	—	—
Unzendake	23·8	326	5 9	+ 1	9 29	+10	—	—
Nagasaki	23·9	326	5 8	− 1	9 26	+ 5	—	—
Nagano	24·0	346	5 9	− 1	9 39	+16	—	—
Toyooka	24·0	339	5 10	0	9 28	+ 5	—	15·5
Manila	24·1	275	5 8k	− 3	9 28	+ 3	—	—
Saga	24·1	327	5 14	+ 3	9 47	+22	—	—
Toyama	24·2	344	5 20	+ 8	9 39	+12	—	—
Hukuoka	24·3	328	5 14k	+ 1	9 30	+ 2	—	—
Hukuoka B	24·3	328	5 14	+ 1	9 33	+ 5	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kanazawa		24·3	343	5 11	− 2	9 37	+ 9	—	—
Aidu		24·4	350	6 7	+53	10 34	+64	—	—
Takada		24·4	346	5 22	+ 8	9 40	+10	—	—
Hukusima		24·5	350	5 17	+ 2	—	—	—	—
Tomie		24·5	324	5 17	+ 2	9 23	− 9	—	—
Hamada		24·6	333	5 13	− 3	—	—	—	—
Sakai		24·6	338	5 17	+ 1	—	—	—	—
Sendai		24·9	352	5 22	+ 3	9 53	+14	—	—
Niigata		25·0	348	5 31	+11	—	—	—	—
Wazima		25·0	344	5 19	− 1	9 50	+ 9	—	—
Yamagata		25·0	352	5 30	+10	—	—	—	—
Isinomaki		25·1	352	6 25	+64	—	—	—	—
Karenko		25·1	299	5 17	− 4	—	—	—	—
Taito		25·1	295	5 14	− 7	—	—	—	—
Giran		25·2	301	5 36	+14	10 4	+20	—	—
Kosyun		25·2	294	5 18	− 4	9 41	− 3	—	—
Taihoku		25·5	301	5 22	+ 3	9 57	+ 7	—	—
Arisan		25·6	297	5 24	− 1	—	—	—	—
Mizusawa	E.	25·8	353	e 5 32	+ 5	e 9 58	+ 3	—	—
	N.	25·8	353	e 5 28	+ 1	e 9 51	− 4	—	—
Taityu		25·9	298	5 27	− 1	—	—	—	—
Tainan		26·0	295	5 25	− 4	—	—	—	—
Husan		26·2	328	5 32	+ 1	10 8	+ 6	—	—
Morioka		26·3	353	5 38	+ 6	10 17	+14	—	—
Akita		26·5	350	5 33	− 1	—	—	—	—
Taikyu		27·0	329	5 31	− 7	e 9 1	−74	e 17·3	—
Zi-ka-wei	Z.	28·4	312	e 5 42	− 9	9 42	−56	12·2	24·9
Hakodate		29·1	352	6 18	+21	—	—	—	—
Keizyo		29·2	329	e 5 53	− 5	e 12 24	SSSS	e 20·6	—
Zinsen		29·3	328	e 5 57	− 2	e 10 48	− 5	—	—
Sapporo		29·6	354	7 47	?	12 46	?	—	—
Nanking		30·8	311	i 6 9	− 3	11 12	− 5	14·1	19·9
Hong Kong		31·2	291	6 16k	0	11 18	− 5	15·2	18·6
Vladivostok		31·8	341	i 6 25	+ 4	e 11 31	− 1	13·6	19·3
Chiufeng		37·0	322	e 6 56k	−10	i 12 45	− 6	15·7	23·6
Phu-Lien		38·0	287	i 7 15	0	e 13 4	− 2	18·1	21·5
Batavia	Z.	43·5	246	i 7 55	− 6	—	—	—	—
Medan		47·6	263	e 8 36	+ 3	—	—	—	—
Sydney		47·6	174	i 15 26	S	(i 15 26)	− 1	23·1	24·1
Riverview		47·6	174	e 8 40	+ 7	i 15 39	+12	e 21·3	27·0
Adelaide		49·1	188	i 8 43	− 1	i 15 49	+ 1	22·4	26·7
Apia		50·2	121	e 9 14	+21	16 36	+32	—	—
Melbourne		51·5	181	e 9 31	+28	16 22	0	23·5	29·1
Perth		53·9	211	9 28	+ 7	16 53	− 1	25·4	35·1
Honolulu		54·0	73	e 9 38	+17	16 33	−23	24·4	—
Calcutta	N.	55·0	281	9 33	+ 4	17 8	− 1	—	33·6
Arapuni		58·9	153	—	—	18 14	+13	i 25·8	29·1
Wellington		61·2	156	10 16	+ 3	18 43	+11	31·1	37·1
Christchurch		62·3	159	i 10 23k	+ 3	e 18 45	− 1	—	—
Semipalatinsk		64·0	320	10 30	− 2	19 6	− 1	—	—
Agra	E.	64·2	294	i 10 31	− 3	i 18 57	−13	—	—
Hyderabad		64·7	283	10 39	+ 2	19 15	− 1	28·9	41·1
Colombo		65·0	271	10 50	+11	19 42	+22	31·7	38·5
Kodaikanal	E.	66·7	276	e 10 45	− 5	19 22	−19	31·0	—
Frunse		67·0	311	10 48	− 4	—	—	34·6	—
College		67·7	25	—	—	e 20 15	+22	e 31·4	—
Andijan		68·6	309	11 6	+ 4	e 21 8	+64	36·1	—
Bombay		69·8	285	e 11 8	− 1	20 10	− 9	—	41·5
Tchimkent		70·7	311	11 25	+10	—	—	—	—
Tashkent		71·0	310	11 19	+ 2	i 20 23	−10	e 30·0	41·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka		72·5	34	(e 15 8?)	PP	—	—	e 15·1	—
Samarkand		72·8	308	e 11 27	− 1	e 20 59	+ 5	—	—
Sverdlovsk		75·9	326	i 11 36	+11	i 21 39	+ 9	44·7	44·9
Seattle		81·2	43	—	—	e 22 4	−24	e 34·5	—
Ukiah		82·2	52	e 12 27	+ 8	e 22 44	+ 5	—	—
Berkeley		83·1	53	e 12 26	+ 2	—	—	—	—
Branner		83·3	53	e 12 26	+ 1	22 59	+ 9	—	—
Baku		85·6	311	12 39	+ 3	i 23 4	[+ 1]	41·1	47·4
Fresno	N.	85·9	54	e 12 28	−10	—	—	—	—
Haiwee		86·9	53	e 12 45	+ 2	e 23 24	− 2	—	—
Pasadena		87·2	55	i 12 46a	+ 2	e 23 27	− 2	e 36·2	—
Mount Wilson	z.	87·3	55	i 12 47a	+ 2	—	—	—	—
Grozny		87·8	314	e 13 8	+21	—	—	44·1	—
Riverside		87·9	55	e 12 49	+ 2	e 23 38	+ 2	—	—
Butte		88·0	43	e 12 55	+ 7	e 23 12	[− 8]	e 40·3	—
La Jolla		88·3	57	i 12 51	+ 2	—	—	—	—
Moscow		88·6	327	12 51	0	23 15	[− 9]	45·1	53·7
Tiflis		88·9	313	e 12 52	0	23 18	[− 8]	45·6	57·7
Bozeman		89·1	43	—	—	23 8	[−19]	e 39·3	—
Pulkovo		90·3	333	e 12 58	− 1	23 31	[− 3]	46·1	54·7
Tucson		93·7	56	13 17a	+ 3	e 24 16	−14	42·6	—
Theodosia		94·1	318	e 16 19	PP	e 24 34	0	46·1	—
Simferopol		95·0	318	e 16 30	PP	e 24 41	− 1	51·1	—
Scoresby Sund		95·4	356	19 8?	PPP	—	—	45·1	—
Sebastopol		95·5	318	e 16 43	PP	24 48	+ 1	57·1	—
Upsala		95·6	336	—	—	e 24 8?	[+ 4]	e 42·1	53·2
Yalta		95·7	318	e 16 8	PP	e 24 23	{+ 2}	50·1	—
Ksara		98·2	306	e 13 30	− 5	e 24 4	[−13]	—	—
Copenhagen		100·4	335	18 6	PP	25 9	−21	45·1	—
Budapest		102·6	326	e 18 14	PP	—	—	e 52·1	62·1
Sofia		102·9	320	e 18 20	PP	—	—	—	55·1
Prague		103·3	330	e 18 44	PP	e 24 8?	[−34]	e 50·1	56·1
Belgrade	z.	103·4	323	—	—	e 34 12	SS	e 58·1	—
Hamburg		103·4	335	i 18 24	PP	—	—	e 51·1	59·1
Helwan		103·4	306	e 12 53	−66	24 33	[− 9]	—	—
Vienna		103·6	327	e 17 18	PP	e 24 59	[+16]	e 54·6	—
Jena		104·1	331	e 18 8	PP	e 25 41	−21	51·1	65·6
Madison		104·1	38	—	—	e 26 8?	+ 6	—	—
Chur		104·3	331	e 15 23	+80	e 24 20	—	e 52·1	68·6
Göttingen		104·4	333	—	—	i 25 41	{+15}	—	61·6
Graz		104·8	327	—	—	e 26 44	+35	e 54·1	65·8
Zagreb		105·3	326	e 17 20	[−42]	e 24 38	[−13]	e 51·1	—
Edinburgh		105·7	342	—	—	i 29 28	?	e 53·1	—
Florissant		105·9	42	e 12 32	?	e 20 2	?	e 49·1	60·1
De Bilt		105·9	335	e 18 45	PP	e 33 43	SS	e 48·1	69·5
Chicago		105·9	38	e 15 14	+63	—	—	—	—
St. Louis		106·0	42	(e 18 43)	PP	i 25 4	[+ 9]	e 50·1	—
Stuttgart		106·7	332	e 14 44	+29	e 25 48	{+ 5}	e 52·1	69·7
Stonyhurst		107·2	341	—	—	e 26 8	{+21}	e 48·1	58·1
Uccle		107·3	336	e 18 43	PP	33 52	SS	e 48·1	—
Strasbourg		107·5	332	e 18 31	PP	—	—	e 51·1	—
Bidston		107·8	341	—	—	e 26 33	{+42}	e 48·1	61·5
Kew		108·5	338	i 18 38k	PP	e 26 34	{+38}	e 52·1	63·0
Florence		109·2	326	19 8	PP	—	—	—	29·1
Toronto		109·4	32	e 14 29	+ 1	—	—	52·1	—
Paris		109·6	335	e 18 51	PP	e 29 8?	?	51·1	58·1
Ottawa		110·0	29	e 19 8?	PP	e 25 8?	[− 5]	e 47·1	—
Jersey		111·0	338	—	—	i 43 58	?	57·8	—
Vermont		111·9	28	—	—	e 24 31	[−51]	e 47·8	—
Oak Ridge		114·2	28	e 19 39	PP	—	—	e 54·1	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Philadelphia	114·2	32	e 18 49	[+18]	e 25 18	[−13]	e 51·4	—
Columbia	114·7	41	29 18	PS	—	SS	e 53·2	—
Toledo	119·5	333	e 18 52	[+ 8]	—	—	e 57·7	69·8
Granada	121·5	332	20 27	PP	—	—	e 66·1	—
San Fernando	123·3	333	e 21 51	?	e 28 25	?	62·1	—
Cape Town	128·4	238	e 22 40	?	i 38 42	SS	e 60·9	74·7
San Juan	135·1	45	e 20 2	[+47]	26 8	[−25]	e 62·5	—
Huancayo	139·0	92	e 19 33	[+13]	e 29 1	{−17}	e 64·4	—
La Paz	147·1	101	i 19 53	[+16]	30 20	{+14}	72·3	86·6
La Plata	148·9	138	19 56	[+16]	—	—	42·5?	—
Rio de Janeiro	167·5	138	e 21 40	{+22}	—	—	e 46·5	—

Additional readings :—
Osaka PP = +5m.39s.
Sumoto SN = +9m.13s., SZ = +9m.16s.
Kobe ePEZ = +4m.58s., iPZ = +5m.4s., iPEN = +5m.5s., iE = +6m.11s., SN = +9m.13s., iE = +10m.8s.
Toyooka SN = +9m.30s.
Zi-ka-wei PPZ = +6m.10s., SSZ = +10m.30s., SSSZ = +10m.42s.
Keizyo eSSE = +15m.45s.
Nanking iPN = +6m.14s., PP = +7m.6s., PPP = +7m.34s., SSE = +12m.26s., SSN = +12m.34s.
Hong Kong PP = +7m.11s., P_cP = +9m.28s., SS = +12m.59s., SSS = +13m.58s., S_cS = +16m.29s.
Vladivostok PP = +7m.35s., PPPP = +8m.20s.
Chiufeng iP = +7m.6s., PPEN = +8m.24s., S = +12m.49s.
Phu-Lien e = +8m.49s. =PPP −3s.
Sydney e = +12m.53s., iS = +20m.38s.
Riverview iSN = +15m.43s.
Adelaide i = +9m.57s. and +10m.42s., e = +17m.53s., i = +19m.31s. and +24m.40s.
Apia ePP = +10m.28s., ePP = +11m.20s.
Perth P_cP = +10m.38s., PP = +11m.33s., PPP = +12m.28s., PS = +17m.8s., SS = +20m.33s., SSS = +22m.8s.
Honolulu ePPP = +12m.42s., SSS = +22m.45s., e = +24m.3s.
Calcutta PPN = +11m.18s.
Wellington PP = +12m.46s., SS = +22m.58s., SSS = +24m.29s., L_q = +28·4m.
Christchurch iPNE = +10m.25s.a, ipP = +11m.33s., i = +13m.40s., iSEN = +18m.54s., iSSN? = +21m.5s.
Agra PSE = +19m.21s., SSE = +23m.6s.
Kodaikanal PPE = +13m.8s.
College ePS = +20m.37s., eSS = +24m.8s., eSSS = +27m.21s.
Bombay PPE = +13m.19s., S_cSEN = +21m.1s., SSEN = +24m.24s.
Sverdlovsk L_q = +36·5m.
Seattle eS = +22m.26s.
Ukiah e = +22m.23s., e = +23m.16s., e = +34m.32s.
Berkeley eENZ = +12m.32s.
Branner ePN = +12m.27s., iE = +12m.46s., iE = +13m.0s., eE = +13m.22s., eE = +13m.31s., iE = +14m.3s., eE = +23m.17s., eN = +23m.26s., eE = +23m.36s., eN = +24m.35s.
Pasadena iN = +24m.23s. =PS +5s.
Butte e = +22m.15s., ePS = +24m.23s.
Moscow PP = +16m.49s., PPP = +18m.14s., eS = +23m.39s., SS = +29m.44s.
Tiflis eEZ = +14m.17s., PPZ = +16m.28s., SSE = +28m.57s.
Bozeman eSKS = +23m.8s.
Pulkovo SS = +29m.44s.
Tucson e = +13m.21s., e = +24m.23s., ePS = +25m.41s., e = +26m.0s., eSS = +31m.2s., eSSS = +34m.44s.
Upsala iPS = +26m.3s.
Ksara iPP = +17m.38s., eSKKS = +24m.56s., ePS = +26m.44s.
Copenhagen +24m.4s., PS = +26m.38s., SS = +32m.14s.
Budapest eE = +18m.38s., e = +27m.14s. =PS +1s.
Prague eN = +27m.8s.?
Belgrade eZ = +40m.15s.
Helwan SKS = +23m.13s.
Vienna eEN = +27m.18s.
Jena eN = +26m.53s.
Florissant eSKSNZ = +18m.44s., eNZ = +18m.52s.
Edinburgh i = +33m.36s.
St. Louis eEN = +25m.38s., eN = +29m.8s., +34m.15s. and +34m.49s.; PP is given as eSKS.
Stuttgart ePKP = +18m.32s., ePP = +19m.0s., eZ = +27m.49s. =PS +1s.
Uccle PSN = +28m.1s.

Continued on next page.

Strasbourg ePPPZ? = +21m.24s., ePSN = +28m.2s., ePPSN = +29m.5s., eZ = +29m.42s.
Bidston e = +34m.17s. and +39m.52s.
Kew ePPSEZ = +29m.25s., eSSEN = +34m.27s., eSSSE = +38m.14s., eN = +39m.55s.
Toronto PP = +19m.8s., PS = +28m.23s.
Ottawa e = +35m.8s.?
Jersey i? = +49m.38s.
Vermont eS = +27m.51s., ePS = +29m.11s., ePPS = +30m.11s., eSS = +36m.51s., eSSS = +39m.41s.
Oak Ridge eZ = +20m.9s., ePSN = +29m.27s., ePPSNZ = +30m.11s., eN = +33s.29s., eSS = +35m.31s., e = +38m.25s.
Philadelphia ePPP = +22m.19s., e = +28m.19s., iPS = +29m.20s., e = +30m.42s., eSS = +35m.35s., eSSS = +40m.14s.
Columbia e = +29m.32s., ePPS = +30m.25s., eSS = +35m.46s.
Toledo PS = +30m.19s.
San Fernando eSS = +37m.29s.
Cape Town iP?E = +24m.25s., iN = +38m.52s.
San Juan e = +20m.14s., ePP = +21m.59s., e = +22m.23s., eSKP = +22m.47s., SKP = +23m.0s., ePPP = +24m.42s.
Huancayo ePP = +21m.55s., eSKP = +22m.33s., ePPS = +24m.58s., e = +37m.58s., eSS = +40m.59s., eSSS = +46m.47s., e = +51m.50s.
La Paz iPKP$_2$ = +20m.39s., PPN = +24m.37s., SSN = +42m.22s.
Long waves were also recorded at Ivigtut, Rathfarnham Castle, Durham, Jersey, Bergen, Tortosa, East Machias, Ann Arbor, Little Rock, and Stonyhurst.

Oct. 29d. Readings also at 5h. (Florissant, St. Louis, Fresno, and near Balboa Heights), 6h. (Weston), 8h. (near Balboa Heights), 13h. (Sumoto and near Medan), 16h. (near Mizusawa), 19h. (near Huancayo), 22h. (Tucson, Frunse, Mount Wilson (3), Pasadena (3), Branner, near Fresno, and near Semipalatinsk).

Oct. 30d. 6h. 2m. 16s. Epicentre 39°·3N. 76°·1E. (as on 1935 July 14d.). X.

$A = +\cdot1859$, $B = +\cdot7512$, $C = +\cdot6334$; $\delta = +6$;
$D = +\cdot971$, $E = -\cdot240$; $G = +\cdot152$, $H = +\cdot615$, $K = -\cdot774$.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Andijan	3·2	294	e 0 45	− 1	e 1 44	S_g	2·1
Frunse	3·8	341	e 1 12	P_g	e 2 19	S_g	—
Tashkent	5·5	290	e 2 3	?	e 2 24	+ 4	3·7
Samarkand	7·0	270	1 40	+ 1	3 8	+ 9	3·4

Additional readings :—
Andijan i = +1m.37s.
Tashkent e = +3m.0s., S = +3m.25s.
Samarkand e = +2m.10s. and +2m.42s.

Oct. 30d. 12h. 12m.13s. Epicentre 34°·0N. 133°·9E. (as on 1934 Jan. 8d.). X.

$A = -\cdot5749$, $B = +\cdot5974$, $C = +\cdot5592$; $\delta = +10$;
$D = +\cdot721$, $E = +\cdot693$; $G = -\cdot388$, $H = +\cdot403$, $K = -\cdot829$.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Sumoto	0·9	67	i 0 11a	− 2	i 0 20	− 3	0·3
Kobe	1·2	57	0 19k	+ 2	0 28	− 3	0·6
Toyooka	1·7	26	e 0 24	0	0 44	0	0·8
Nagoya	2·7	67	e 0 40	+ 1	1 8	− 1	—

Toyooka gives also PN = +28s., PZ = +32s., iZ = +37s.

Oct. 30d. 17h. 14m. 25s. Epicentre 13°·7N. 145°·8E. (as on 1936 Oct. 29d.). R.3.

A = −·8035, B = +·5461, C = +·2368 ; δ = −9.

		△	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Nagoya		22·9	341	e 5 4	+ 4	e 5 59	?	—
Sumoto		22·9	336	4 57	− 3	e 9 13	+10	—
Kobe		23·1	337	e 4 58	− 4	e 8 43	−24	—
Manila		24·1	275	4 56	−15	9 35	+10	—
Nanking		30·8	311	e 6 14	+ 2	11 11	− 6	e 14·0
Chiufeng		37·0	322	e 7 3	− 3	e 12 50	− 1	—
Santa Barbara	z.	85·9	55	e 12 46	+ 8	—	—	—
Haiwee	E.	86·9	53	e 12 44	+ 1	—	—	—
Pasadena		87·2	55	i 12 46	+ 2	—	—	—
Mount Wilson		87·3	55	i 12 47	+ 2	—	—	—
La Jolla	z.	88·3	57	i 12 51	+ 2	—	—	—

Additional readings :—
Sumoto PZ = +4m.58s.
Kobe ePE = +5m.0s., ePN = +5m.1s., eN = +8m.31s.
Long waves were also recorded at Hong Kong.

Oct. 30d. 18h. 9m. 53s. Epicentre 37°·5S. 72°·0W. (as on 1932 April 11d.). R.3.

A = +·2452, B = −·7545, C = −·6088 ; δ = +3 ;
D = −·951, E = −·309 ; G = −·188, H = +·579, K = −·793.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
San Javier		1·9	7	0 20	− 8	0 38	−11	—	—
Santiago		4·2	15	0 56	− 4	1 43	− 5	—	—
La Plata		11·6	81	2 43	0	4 49	− 4	5·7	—
La Paz		21·3	10	i 4 44	+ 1	i 8 35	+ 3	11·6	12·9
Huancayo		25·6	354	5 28	+ 3	e 9 55	+ 4	—	—
Rio de Janeiro		28·7	67	—	—	e 10 27	−16	e 14·1	—
San Juan		56·1	7	—	—	e 21 13	SS	—	—
Tucson		78·6	328	12 3	+ 3	—	—	e 38·3	—
Mount Wilson	z.	83·5	323	i 12 29	+ 3	—	—	—	—
Pasadena	z.	83·5	323	i 12 30	+ 4	—	—	—	—
Ksara		122·8	71	e 18 31	PP	—	—	—	65·1
Samarkand		148·1	73	e 19 37	[− 2]	—	—	—	—

Additional readings :—
Huancayo e = +5m.32s., i = +5m.37s., PP = +6m.1s., i = +6m.8s., e = +7m.42s. and +8m.48s., S = +10m.3s.
Ksara ePS = +28m.28s., eSS = +35m.6s.
Long waves were also recorded at Rathfarnham Castle, Zurich, De Bilt, Uccle, Cape Town, Baku, Tiflis, Sverdlovsk, and Tashkent.

Oct. 30d. Readings also at 1h. (near Santiago), 2h. (near San Javier), 4h. (near Santiago), 6h. (Kobe, near Mizusawa, and near Nagoya), 7h. (Mount Wilson and Pasadena), 8h. (Mount Wilson and Pasadena), 9h. (Mount Wilson, Pasadena, and Manila), 10h. (Mount Wilson, Pasadena, Santa Barbara, and La Jolla), 11h. (Sofia, Yalta, Manila, Nanking, Hong Kong, Tiflis, and near Wellington), 13h. (Arapuni, Fresno, and Mizusawa), 14h. (Hyderabad, Bombay, Calcutta, Tashkent, and Sverdlovsk), 18h. (Santiago, and San Javier (4)), 19h., 20h., and 22h. (near San Javier).

Oct. 31d. 15h. 0m. 37s. Epicentre 32°·0S. 175°·5W. N.3.

$A = -·8454$, $B = -·0665$, $C = -·5299$; $\delta = -8$;
$D = -·078$, $E = +·997$; $G = +·528$, $H = +·042$, $K = -·848$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni		9·4	227	—	—	i 4 47	S*	—	—
Wellington		12·1	217	—	—	i 4 58	− 7	—	—
Christchurch		14·8	216	—	—	6 3	− 7	—	6·4
Sydney		28·0	258	e 5 47	0	e 10 23	− 9	13·4	15·8
Melbourne		32·7	249	i 6 41	+12	e 11 41	− 5	14·9	17·2
Pasadena	Z.	85·3	45	i 12 35	0	—	—	—	—
Mount Wilson	Z.	85·5	45	i 12 35	− 1	—	—	—	—
Haiwee		86·8	44	e 12 43	+ 1	—	—	—	—
Tinemaha	N.	87·3	43	e 12 45	0	—	—	—	—
Tucson		88·6	50	i 12 53a	+ 2	e 23 37	− 6	e 40·5	—
Nanking		89·2	309	—	—	e 23 23	−25	e 43·4	—
Vladivostok		89·2	324	—	—	e 22 59	[−29]	44·0	50·8
Semipalatinsk		122·8	313	e 24 8	?	e 25 34	[−25]	—	—
Almata		123·3	304	—	—	e 25 34	[−26]	—	—
Tashkent		128·4	299	—	—	e 30 4	SKSP	e 61·3	72·2
Sverdlovsk		134·6	320	i 19 19	[+ 5]	—	—	65·4	—
Grozny		145·8	302	19 32	[− 4]	—	—	—	—
Tiflis		146·7	299	e 19 29	[− 8]	—	—	79·9	86·4
Erevan		146·9	296	19 35	[− 2]	—	—	—	—
Pulkovo		147·4	336	i 19 30	[− 8]	—	—	e 79·4	—
Sotchi		150·1	304	19 42	[0]	—	—	—	—
Theodosia		152·8	308	e 19 52	[+ 6]	—	—	—	—
Simferopol		153·6	308	e 19 51	[+ 4]	—	—	—	—
Ksara		153·7	281	e 19 45	[− 2]	—	—	74·4	82·4
Yalta		153·8	307	i 19 49	[+ 2]	—	—	—	—
Sebastopol		154·1	308	e 20 2	[+15]	—	—	—	—
Chur		164·6	347	e 20 46	[+47]	—	—	—	—
Almeria		172·5	48	e 24 2	PKS	—	—	—	—

Additional readings :—
Wellington S = +5m.2s.
Christchurch i = +6m.13s. and +6m.18s.
Melbourne i = +7m.42s.
Tashkent i = +30m.14s.
Sverdlovsk i = +22m.45s. and +23m.1s., e = +34m.57s.
Ksara ePP = +23m.31s.
Long waves were also recorded at Riverview, Perth, Bombay, Kodaikanal, Strasbourg, Paris, and Kew.

Oct. 31d. Readings also at 0h. (Zagreb), 2h. (Christchurch and near San Javier (2)), 5h. (Sumoto and near Kobe), 6h. (near Mizusawa), 8h. (Santiago), 14h. (La Plata, near San Javier, and Santiago), 16h. (Baku and Pulkovo), 17h. (Balboa Heights and Hastings), 18h. (Hastings, Ivigtut, and Paris), 21h. (San Javier), 22h. (near Berkeley and San Francisco), 23h. (Tacubaya).

Nov. 1d. 0h. 23m. 45s. Epicentre 44°·5N. 26°·5E. (as on 1929 May 20d.). R.3.

$A = +·6383$, $B = +·3183$, $C = +·7009$; $\delta = 0$;
$D = +·446$, $E = -·895$; $G = +·627$, $H = +·313$, $K = -·713$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bucharest		0·3	254	e 0 25	?	i 0 41	?	—	—
Sofia		2·9	232	e 0 53	P_g	i 1 21	S*	—	—
Belgrade		4·3	276	e 1 3k	+ 2	i 2 8	S_g	—	2·4
Sebastopol		5·0	87	i 1 10	− 1	i 2 5	− 3	—	—
Simferopol		5·4	83	i 1 14	− 3	i 2 12	− 6	—	—
Yalta		5·5	87	i 1 15	− 3	i 2 14	− 6	—	—
Theodosia		6·2	82	i 1 27	− 1	2 34	− 4	—	—
Vienna		7·9	302	e 1 51	− 1	3 54	S*	—	—
Sotchi		9·6	91	e 2 18	+ 2	i 3 52	−11	—	—
Prague		9·9	308	e 3 33	?	—	—	—	—
Chur		12·1	287	e 2 46	+ 3	—	—	—	—
Ksara		12·9	143	e 3 16	+15	e 5 57	+32	—	—
Moscow		13·2	28	—	—	e 5 39	+ 7	e 6·4	—
Tiflis		13·6	96	e 3 12	+ 2	e 5 36	− 5	—	—
Grozny		13·9	88	e 4 7	+53	—	—	—	—
Pulkovo		15·4	7	—	—	i 5 39	−45	i 7·3	—
Toledo		23·0	269	e 3 50	−71	—	—	—	—

Additional readings :—
Sofia $S_g = +1$m.37s.
Belgrade iZ = +1m.14s., +1m.36s., and +2m.8s.
Toledo i = +4m.13s.
Long waves were also recorded at Czernowitz, Sverdlovsk, and Zurich.

Nov. 1d. 16h. 10m. 6s. Epicentre 37°·5S. 72°·0W. (as on Oct. 30d.). X.

$A = +·2452$, $B = -·7545$, $C = -·6088$; $\delta = +3$;
$D = -·951$, $E = -·309$; $G = -·188$, $H = +·579$, $K = -·793$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
San Javier		1·9	7	0 22	− 6	0 39	−10	—	—
Santiago		4·2	15	0 55	− 5	1 39	− 9	—	—
La Plata		11·6	81	2 41	− 2	5 24	+31	6·1	—
La Paz		21·3	10	4 46k	+ 3	i 8 41	+ 9	11·2	13·5
Huancayo		25·6	354	e 5 30	+ 5	9 58	+ 7	—	—
Rio de Janeiro	E.	28·7	67	e 6 19	+26	e 10 34	− 9	e 13·6	—
	N.	28·7	67	e 6 16	+23	e 10 33	−10	e 13·6	—
San Juan		56·1	7	e 14 59	?	e 17 26	+ 2	e 30·4	—
Tucson		78·6	328	e 12 6	+ 6	—	—	e 38·9	—
Christchurch		80·1	221	—	—	e 22 39	+22	37·7	43·7
Mount Wilson	Z.	83·5	323	i 12 33	+ 7	—	—	—	—
Pasadena		83·5	323	e 12 32	+ 6	—	—	e 43·9	—
Tinemaha		86·1	324	e 12 45	+ 6	—	—	—	—
Toledo		99·3	47	—	—	e 35 54?	SSS	—	—
Ksara		122·8	71	e 20 50	PP	—	—	55·9	65·4
Tiflis		132·2	65	e 22 45	PKS	e 33 34	?	67·9	—
Grozny		133·4	63	—	—	i 31 16	SKSP	—	—
Baku		135·5	68	—	—	e 34 13	?	67·9	79·5
Sverdlovsk		143·5	43	e 19 52	[+23]	e 41 42	SS	63·9	79·4
Tashkent		150·1	71	i 19 58	[+16]	—	—	—	96·2

Additional readings :—
La Paz iPZ = +4m.50s.
Huancayo e = +5m.48s., ePP = +6m.2s. = PPP + 0s., ePP = +16m.5s. = PPPP + 1s., e = +6m.14s., e = +8m.32s., S = +10m.9s.
San Juan e = +16m.12s.
Tucson e = +36m.24s.
Ksara e = +30m.38s.
Tiflis e = +32m.15s.
Baku e = +44m.55s., e = +53m.26s.
Tashkent e = +67m.12s.
Long waves were also recorded at Cape Town, Perth, Bombay, Nanking, and other European stations.

The numerous shocks recorded on Nov. 1 at San Javier from the epicentre of 16h. are listed below. Except when S appears after the figures for the time it is intended that the reading be taken as P and that an S reading follows 17s. later in each case.

h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.
1	10	28	16	30	55S	17	8	5	19	7	28S
16	14	33	16	32	54S	17	9	15S	19	9	31S
16	16	52S	16	33	28S	17	16	26S	19	9	34
16	17	26S	16	34	5	17	17	30S	19	10	51S
16	18	15S	16	34	57S	17	19	0S	19	17	20S
16	18	33S	16	35	23S	17	19	12	19	32	20S
16	20	16	16	35	40S	17	23	38S	19	43	49
16	20	53	16	36	54S	17	25	46S	19	47	22
16	22	43S	16	40	27S	17	26	36S	19	53	34S
16	23	58S	16	42	53S	17	52	28	20	11	58S
16	24	36	16	44	31	17	57	26S	20	50	56S
16	26	0S	16	46	31S	18	22	17S	21	9	39
16	27	0S	16	47	13	18	22	52	21	11	0S
16	27	10	16	52	30S	18	42	45S	21	11	40S
16	29	4S	16	53	48	18	44	40S	21	42	42S
16	29	20S	16	54	51S	18	46	58S	21	45	43
16	29	50?S	16	58	39S	18	51	9	22	5	15S
16	30	18	17	2	45	19	1	15	23	2	59S

Nov. 1d. 22h. Laibach attributes the undermentioned readings to 46°·1N. 15°·9E.

Marseilles eS? = 33m.18s. (in error?).
Zagreb iP_g = 36m.12s.k i = 36m.13s. and 36m.14s., iNE = 36m.15s., M = 36m.23s.
Laibach iP_g = 36m.28s., iS_g = 36m.44s., M = 37m.3s.
Vienna ePZ = 36m.48s., S = 37m.22s.
Padova 37m.0s.
Belgrade e = 37m.10s., 37m.59s., and 38m.10s.
Strasbourg e = 38m., eS_g = 39m.30s.
Jena eN = 38m.24s., eE = 38m.28s., eN = 38m.40s., M = 39m.24s.
Stuttgart eS_g = 39m.0s.
Toledo ePN = 39m.56s., iSN = 42m.53s., P_cPN = 44m.54s., P_cSN = 48m.31s., S_cSN = 52m.8s.

Nov. 1d. Readings also at 0h. (Mount Wilson and Pasadena), 1h. (near Berkeley), 2h. (Agra, Tashkent (2), near Andijan (2), and Frunse), 3h. (Almata, Frunse, Semipalatinsk, Calcutta, Sverdlovsk, and Ksara), 4h. (near Florissant and Little Rock), 11h. (Balboa Heights), 12h. (near Bunnythorp and near Wellington), 14h. (near Medan), 15h. (Branner, Lick, and near Fresno), 17h. (Santiago, Mount Wilson, Pasadena, Manila, near Mizusawa, Nagoya, and Keizyo), 18h. (Taikyu, Zinsen, near Hukuoka B, Nanking, and near Santiago), 19h. (Cheb, La Paz, La Plata, Rio de Janeiro, and near Santiago (2)), 21h. (Tacubaya), 22h. (near Zagreb (2)), 23h. (Nanking).

Nov. 2d. 14h. 57m. 53s. Epicentre 47°·5N. 153°·9E. N.1.

A = −·6067, B = +·2972, C = +·7373 ; δ = +2 ;
D = +·440, E = +·898 ; G = −·662, H = +·324, K = −·676.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Nemuro	7·2	238	1 42	0	3 0	− 4	—	—
Sikka	7·4	288	0 35	−70	1 42	P	—	—
Ootomari	7·6	268	1 14	−34	2 16	−58	—	—
Kusiro	8·0	240	1 38	−15	3 6	−18	—	—
Obihiro	8·8	243	2 1	− 4	3 20	−24	—	—
Asahigawa	8·9	250	2 14	+ 8	—	—	—	—
Haboro	9·0	255	1 53	−14	—	—	—	—
Urakawa	9·5	240	2 9	− 5	3 53	− 8	—	—
Sapporo	9·9	248	2 25	+ 6	4 21	+10	—	—
Muroran	10·6	245	2 29	0	4 34	+ 6	—	—

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Hakodate	11·0	243	2 38	+ 3	—	—	—	—
Hatinohe	11·3	237	2 33	− 6	4 31	−14	—	—
Aomori	11·5	239	2 41	− 1	4 42	− 8	—	—
Morioka	12·1	235	2 48	− 2	4 56	− 9	—	—
Mizusawa	12·5	232	e 2 51	− 4	i 5 3	−12	—	—
Akita	12·7	237	3 22	+24	5 36	+16	—	—
Isinomaki	12·9	230	3 3	+ 2	5 29	+ 4	—	—
Sendai	13·2	231	3 2	− 3	—	—	—	—
Yamagata	13·5	232	3 12	+ 3	—	—	—	—
Hukusima	13·8	230	3 10	− 3	5 36	−10	—	—
Aidu	14·1	231	3 0	−17	5 25	−28	—	—
Niigata	14·5	234	4 2	+40	—	—	—	—
Mito	14·9	227	3 28	+ 1	—	—	—	—
Utunomiya	15·1	229	3 28	− 2	—	—	—	—
Kakioka	15·2	227	3 25	− 6	6 6	−14	—	—
Tukubasan	15·2	227	3 28	− 3	6 6	−14	—	—
Tyosi	15·2	224	3 28	− 3	5 50	−30	—	—
Takada	15·5	234	3 44	+ 9	—	—	—	—
Kumagaya	15·6	229	3 33	− 3	—	—	—	—
Maebasi	15·6	230	3 35	− 1	6 23	− 6	—	—
Tokyo	15·8	227	3 41	+ 2	6 43	+ 9	—	—
Nagano	15·9	233	3 41	+ 1	6 37	+ 1	—	—
Oiwake	15·9	231	3 39a	− 1	6 37	+ 1	—	—
Vladivostok	16·0	262	i 3 44	+ 3	i 7 7	+29	8·0	9·7
Wazima	16·1	237	3 48	+ 5	—	—	—	—
Yokohama	16·1	227	3 41	− 2	6 45	+ 4	—	—
Yokosuka	16·2	226	3 57	+13	—	—	—	—
Matumoto	16·3	232	3 44	− 1	6 45	0	—	—
Hunatu	16·4	229	3 47	+ 1	6 46	− 2	—	—
Husiki	16·4	235	3 46	0	6 32	−16	—	—
Kohu	16·4	230	3 47	+ 1	6 49	+ 1	—	—
Mera	16·4	225	3 49	+ 3	6 50	+ 2	—	—
Toyama	16·4	235	3 47	+ 1	6 59	+11	—	—
Misima	16·6	227	3 50	+ 1	—	—	—	—
Ito	16·7	227	3 46	− 4	6 39	−16	—	—
Numadu	16·7	228	3 49	− 1	—	—	—	—
Takayama	16·7	234	3 59	+ 9	—	—	—	—
Kanazawa	16·8	235	4 3a	+11	7 8	+11	—	—
Gihu	17·6	233	4 0	− 2	7 19	+ 4	—	—
Hamamatu	17·6	229	4 4	+ 2	7 25	+10	—	—
Nagoya	17·6	232	4 3	+ 1	—	—	8·6	11·8
Ibukisan	17·8	234	4 7	+ 3	7 22	+ 2	—	—
Hatidyozima	17·9	220	4 8	+ 3	7 22	0	—	—
Hikone	18·0	234	4 7	0	7 25	0	—	—
Kameyama	18·1	233	4 14	+ 6	7 37	+10	—	—
Tu	18·2	233	4 20	+11	7 43	+14	—	—
Miyadu	18·3	237	4 9	− 1	—	—	—	—
Kyoto	18·4	234	4 10	− 1	—	—	—	—
Toyooka	18·5	237	4 12	− 1	7 42	+ 6	9·5	11·8
Osaka	18·8	233	3 43	−33	—	—	—	—
Osaka B	18·8	233	4 9	− 7	7 52	+10	—	—
Yagi	18·8	233	4 14	− 2	—	—	—	—
Kobe	19·0	234	e 4 18	− 1	7 51	+ 5	—	11·3
Wakayama	19·3	233	4 21	− 1	7 46	− 6	—	—
Sumoto	19·4	233	4 22a	− 1	8 0	+ 6	e 10·1	13·4
Okayama	19·7	236	4 29	+ 3	8 5	+ 5	—	—
Tokusima	19·8	233	4 28	+ 1	8 7	+ 5	—	—
Tadotu	20·1	235	4 30	− 1	8 13	+ 5	—	—
Sinkyo	20·2	270	3 34	−58	—	—	—	—
Hamada	20·6	239	4 39	+ 3	8 24	+ 6	—	—
Muroto	20·6	233	4 38a	+ 2	8 27	+ 9	—	—

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		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hirosima		20·7	238	4 39	+ 2	—	—	—	—
Koti		20·7	235	4 40	+ 3	—	—	—	—
Matuyama		21·0	237	4 41	+ 1	8 33	+ 7	—	—
Simjdu		21·6	234	4 51	+ 5	8 48	+10	—	—
Heizyo		22·0	258	i 4 53a	+ 2	i 8 59	+13	e 12·4	—
Keizyo		22·0	253	i 4 53k	+ 2	e 8 53	+ 7	e 11·3	14·9
Taikyu		22·0	248	4 56	+ 5	8 58	+12	11·5	—
Husan		22·3	246	i 5 5	+11	9 7	+15	11·8	—
Zinsen	z.	22·3	254	e 4 52a	− 2	i 9 7	+15	e 11·9	14·0
Titizima		22·4	208	4 54	− 1	—	—	—	—
Hukuoka		22·5	240	4 58	+ 2	9 0	+ 5	11·3	—
Hukuoka B		22·5	240	4 58	+ 2	i 9 5	+10	e 13·7	14·1
Saga		22·8	239	5 10	+11	9 15	+14	—	—
Kumamoto		22·9	239	5 3	+ 3	—	—	—	—
Miyazaki		23·1	235	5 4a	+ 2	9 14	+ 7	—	—
Unzendake		23·2	239	5 12	+ 9	9 18	+10	—	—
Nagasaki		23·4	239	5 7a	+ 2	9 20	+ 8	—	—
Yingkow		23·6	266	4 25	−41	—	—	—	—
Kagosima		23·9	236	5 12	+ 3	—	—	—	—
Tomie		24·1	242	5 14	+ 3	9 21	− 4	—	—
Dairen		24·9	262	5 4	−15	9 26	−13	—	—
Nake		26·9	233	5 48	+11	10 33	+19	—	—
Chiufeng		28·0	270	5 49	+ 2	10 26	− 6	e 13·6	17·4
Naha		29·6	234	6 4	+ 3	10 58	0	—	—
Zi-ka-wei		29·6	249	i 6 7k	+ 6	10 59	+ 1	15·4	17·1
Nanking		30·7	254	i 6 14	+ 3	i 11 16	0	14·5	19·7
Taihoku		34·0	240	e 11 53	S	(e 11 53)	−13	—	21·4
College		35·1	39	7 12	+22	e 12 31	+ 8	17·0	—
Arisan		35·6	240	6 17	−37	—	—	—	—
Taito		36·0	239	7 0	+ 2	—	—	—	—
Hong Kong		40·5	246	7 36a	0	13 44	0	19·8	24·3
Sitka		42·3	50	e 7 52	+ 1	e 14 5	− 5	e 20·9	—
Manila		42·7	231	i 7 56a	+ 2	14 13	− 3	—	—
Phu-Lien		46·3	252	e 8 24	+ 1	15 9	0	23·1	29·0
Semipalatinsk		46·4	303	8 23	− 1	—	—	23·6	—
Honolulu		46·6	106	e 8 10	−15	14 58	−15	i 21·5	—
Almata		52·0	296	e 9 8	+ 2	—	—	25·1	—
Seattle		53·5	56	e 9 15	− 3	e 16 58	+ 9	e 23·2	—
Frunse		53·6	297	9 17	− 1	e 16 48	− 2	25·1	—
Andijan		56·2	295	9 39	+ 2	17 44	+19	29·1	—
Tchimkent		56·9	299	e 9 47	+ 5	—	—	—	—
Calcutta	E.	57·3	269	9 50	+ 5	17 45	+ 5	27·2	—
Tashkent		57·7	298	i 9 50	+ 2	i 17 45	− 1	28·9	30·4
Ukiah		58·0	65	e 10 0	+10	e 17 40	− 9	e 25·1	—
Dehra Dun		59·0	283	9 57	0	18 7	+ 4	28·8	37·1
Berkeley		59·3	66	e 9 59	− 1	e 18 8	+ 1	—	—
Branner		59·7	67	e 10 1	− 1	—	—	—	—
Lick	N.	60·1	66	e 10 5	0	—	—	—	—
Samarkand		60·1	298	10 7	+ 2	—	—	30·1	—
Bozeman		60·9	53	—	—	18 28	0	e 27·2	—
Fresno	N.	61·6	66	e 10 18	+ 2	—	—	—	—
Scoresby Sund		62·0	359	10 20	+ 2	—	—	32·1	—
Tinemaha		62·3	65	e 10 19	− 1	e 18 51	+ 5	—	—
Haiwee	E.	63·1	65	e 10 24	− 2	e 18 54	− 2	—	—
Santa Barbara		63·1	68	e 10 26	0	—	—	—	—
Pulkovo		63·3	332	e 10 27	0	18 54	− 5	31·1	40·4
Moscow		63·8	326	e 10 32	+ 1	i 19 6	+ 1	32·1	43·9
Pasadena		64·3	67	i 10 32	− 2	i 19 8	− 3	e 29·4	—
Medan		64·5	246	10 32	− 3	19 7	− 7	e 36·1	—
Mount Wilson		64·9	67	e 10 31	− 7	e 19 6	−13	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverside		64·9	67	e 10 37	− 1	c 19 15	− 4	—	—
La Jolla	z.	65·7	67	i 10 43	0	—	—	—	—
Upsala		66·9	338	i 10 51	0	c 19 41	− 2	e 32·1	36·6
Hyderabad		67·5	272	11 1	+ 6	19 54	+ 3	32·2	43·9
Batavia		67·8	232	i 10 58	+ 1	i 19 56	+ 2	c 40·1	—
Apia		68·5	144	—	—	i 19 55	− 8	c 30·4	—
Bergen		69·1	344	i 11 3k	− 2	19 50	−20	e 36·1	—
Baku		69·3	308	i 11 8	+ 2	i 20 20	+ 7	32·1	—
Grozny		69·3	313	11 10	+ 4	e 21 15	S_cS	37·7	—
Piatigorsk		70·1	315	—	—	20 24	+ 2	36·1	—
Tucson		70·1	64	e 11 9	− 2	e 20 21	− 1	c 31·1	—
Bombay		70·3	277	i 11 11	− 2	i 20 21	− 4	34·1	44·0
Tiflis		71·0	312	i 11 17	0	20 32	− 1	35·1	41·0
Copenhagen		71·9	339	i 11 22a	0	20 42	− 2	34·1	—
Sotchi		72·1	317	11 25	+ 2	e 20 53	+ 7	37·6	—
Erevan		72·3	311	i 11 28	+ 3	e 20 57	+ 9	37·1	—
Theodosia		72·9	320	i 11 28	0	i 20 58	+ 2	37·6	—
Kodaikanal	E.	73·3	267	i 11 29	− 2	i 20 58	− 2	i 35·9	49·6
Simferopol		73·5	321	i 11 33	+ 1	21 6	+ 3	38·1	—
Madison		73·6	44	e 11 32	0	e 20 58	− 6	—	—
Yalta		73·9	320	i 11 35	+ 1	21 9	+ 2	29·8	—
Czernowitz	N.	74·1	327	i 11 19	−16	21 2	− 8	39·1	46·1
Sebastopol		74·1	321	i 11 36	+ 1	e 21 11	+ 1	34·7	—
Colombo		74·2	263	11 32	− 4	21 5	− 6	—	50·0
Hamburg		74·4	340	i 11 37a	0	i 21 13	0	e 37·1	46·1
Edinburgh		74·8	347	—	—	i 21 13	− 5	e 38·1	55·0
Chicago		75·5	44	—	—	21 17	− 9	e 35·0	—
Durham		75·7	346	11 44	0	21 45	+17	—	51·6
Göttingen		76·2	338	i 11 46k	− 1	i 21 31	− 3	e 37·1	41·7
Jena		76·4	336	e 11 47	− 1	e 21 34	− 2	e 38·1	48·6
Prague		76·4	334	i 11 46a	− 2	e 21 31	− 5	e 35·1	43·6
Florissant		76·5	47	e 10 53	−56	e 21 33	− 4	—	51·2
Stonyhurst		76·7	347	e 12 20	+30	i 21 46	+ 7	e 32·4	43·8
Ann Arbor		76·8	40	e 11 55	+ 5	i 21 43	+ 2	i 42·6	46·6
Cheb		76·9	336	e 11 53	+ 2	e 21 38	− 4	e 37·1	54·1
De Bilt		76·9	341	i 11 52a	+ 1	21 42	0	e 36·1	42·6
Bidston		77·2	347	i 11 57	+ 4	i 22 14	+29	e 38·1	51·1
Budapest		77·2	331	i 11 53k	0	21 51	+ 6	38·6	41·6
Bucharest		77·3	325	e 11 54	0	21 47	+ 1	37·1	43·6
Ottawa		77·4	34	e 18 7	PPPP	e 21 37	−10	42·1	—
Vienna		77·4	333	i 11 54a	0	e 21 37	−10	e 39·6	44·6
Rathfarnham Castle		77·8	349	i 12 6	+ 9	i 22 27	+35	41·6	53·1
Uccle		78·3	342	i 11 58a	− 1	21 56	− 1	36·1	45·6
Oxford		78·5	345	—	—	22 1	+ 2	42·3	50·4
Kew		78·6	344	i 12 1a	+ 1	e 21 59	− 1	e 38·1	51·2
Little Rock		78·6	51	e 12 2	+ 2	e 21 51	− 9	e 39·4	—
Graz		78·7	332	i 11 57	− 4	i 22 17	+15	e 39·1	52·4
Belgrade		79·0	328	i 12 2k	− 1	i 22 3	− 2	e 49·8	—
Stuttgart		79·0	337	i 12 3a	0	e 21 55	−10	e 38·1	50·3
Vermont		79·1	32	e 11 57	− 6	e 21 54	−12	e 37·3	—
Strasbourg		79·5	338	i 12 5a	0	i 22 9	− 1	c 36·1	48·5
Zagreb		79·7	332	i 12 6a	0	e 22 7	− 5	e 37·4	46·1
Sofia		79·8	326	i 12 8	+ 1	e 22 12	− 2	40·1	43·8
Laibach		79·9	333	e 12 11k	+ 4	i 22 26	+11	e 53·6	—
Zurich		80·4	338	e 12 11a	+ 1	e 22 19	− 1	—	—
Basle		80·5	339	e 12 11	+ 1	e 22 21	0	—	—
Paris		80·5	342	i 12 12	+ 2	22 17	− 4	36·1	47·1
Chur		80·7	337	e 12 12	0	e 22 17	− 6	—	—
East Machias		80·9	29	—	—	e 22 20	− 5	e 43·2	—
Jersey		81·1	345	e 12 13	− 1	i 22 22	− 5	42·9	52·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Besançon		81·2	340	i 12 12	− 2	e 22 23	− 5	e 38·1	—
Neuchatel		81·2	339	e 12 14	0	e 22 26	− 2	—	—
Padova		81·3	334	i 12 18	+ 3	i 22 29	− 1	e 44·1	55·1
Sydney		81·3	182	—	—	i 22 17	−13	44·1	55·4
Riverview		81·4	182	e 12 10	− 5	e 22 19	−12	e 33·3	42·8
Ksara		81·6	312	i 12 15a	− 1	i 22 31	− 2	39·6	44·1
Weston		81·6	32	i 12 15	− 1	29 21	SS	—	—
Philadelphia		82·3	36	i 12 22	+ 2	22 18	−22	36·9	—
Florence		83·0	334	12 26	+ 3	22 35	−12	—	—
Adelaide		83·6	193	e 12 27	+ 1	i 22 41	−12	40·3	48·3
Columbia	E.	84·8	43	e 12 33	+ 1	e 22 43	[−15]	e 39·1	—
	N.	84·8	43	e 12 52	+20	e 22 49	[− 9]	40·3	—
Marseilles		85·0	338	i 11 57	−36	e 21 55	[−64]	e 37·6	46·1
Melbourne		85·7	187	e 15 52	PP	i 23 3	[− 1]	36·8	46·1
Perth		86·5	212	12 47	+ 6	23 7	[− 3]	43·4	—
Bagnères		86·5	341	—	—	e 22 7	[−63]	e 43·1	53·1
Tacubaya	N.	86·6	65	e 12 48	+ 7	i 23 16	− 7	—	—
Helwan		87·1	313	e 12 32	−12	23 22	− 6	—	57·3
Barcelona		87·6	340	—	—	e 23 30	− 3	e 44·7	52·6
Carleforte		88·1	334	12 25	−23	31 25	SSS	—	—
Toledo		90·4	344	i 12 59	0	i 23 46	[+11]	41·8	58·3
Algiers		91·8	337	13 55	+49	24 26	+13	45·1	52·1
Christchurch		92·5	167	i 13 5a	− 4	24 4	−15	43·4	48·0
Almeria		93·0	341	e 13 12	+ 1	—	—	e 48·4	62·0
Granada		93·0	343	i 13 5	− 6	e 23 58	[+ 8]	—	—
San Fernando		94·2	344	e 16 41	PP	i 24 22	−13	48·1	—
Huancayo		125·8	66	—	—	e 25 14	[−53]	59·6	—
La Paz		133·7	62	i 19 13a	[0]	i 28 17	{−28}	64·2	81·7
Cape Town	E.	144·3	276	i 19 34	[+ 2]	e 29 59	{+ 9}	69·7	79·3
	N.	144·3	276	i 19 31	[− 1]	26 34	SKS	69·9	83·5
Rio de Janeiro		151·9	34	i 20 7	{ 0}	—	—	i 42·6	—
La Plata		153·2	72	19 43	[− 3]	—	—	72·1	—

Additional readings :—
Toyooka SZ = +7m.44s.
Sumoto SZ = +8m.5s.
Zinsen iPZ = +4m.55s.
Zi-ka-wei PPZ = +6m.55s., PPPZ = +7m.10s., PPPPZ? = +7m.20s., SSZ = +12m.40s., SSSZ = +13m.16s., SSSSZ = +13m.26s.
Nanking PPP = +7m.20s., i = +11m.58s., SS = +12m.37s., i = +14m.2s.
College iS = +12m.37s., e = +13m.13s., eSS = +14m.45s., and +15m.14s.
Hong Kong PP? = +9m.17s., SS = +16m.28s.
Sitka eS = +14m.16s., S = +14m.19s., iSSS = +17m.31s.
Phu-Lien e = +8m.37s. and +18m.33s.
Honolulu eP = +8m.28s., PP = +9m.18s., ePPP = +10m.38s., S = +15m.8s., PS = +16m.18s., SS = +18m.39s. and +19m.9s., eSSS = +20m.3s.
Seattle eS = +17m.12s.
Berkeley ePE = +10m.1s., eE = +10m.4s., eN = +10m.7s., eN = +18m.11s.
Lick eE = +10m.10s.
Bozeman eS = +18m.32s., ePS = +18m.50s., eSS = +22m.19s.
Pasadena ePKP,PKP = +39m.16s.
Upsala iSE = +19m.45s., SS = +24m.16s., SSS = +27m.3s.
Bergen iZ = +11m.59s.
Tucson eSS = +24m.57s.
Bombay P$_c$PEN = +11m.27s., SSEN = +25m.29s.
Tiflis ePPN = +14m.5s., ePPP = +15m.46s., ePS = +21m.10s., eSKSN = +21m.26s., eSSN = +25m.34s., eSSSN = +28m.50s.
Copenhagen +29m.7s.?
Kodaikanal PPE = +14m.19s., iSSE = +25m.39s.
Madison +26m.11s.
Czernowitz iN = +11m.32s., PPN = +12m.21s., PPP = +16m.7s.? PSN = +21m.42s., SSN = +26m.24s.
Edinburgh i = +21m.34s. and +23m.21s.
Chicago eS = +21m.24s., eSS = +25m.31s. and +26m.4s., eSSS = +29m.32s. and +29m.48s., eL = +40m.1s.
Florissant eE = +11m.14s., eEZ = +11m.49s., eE = +11m.51s., iE = +12m.1s. and +21m.34s.
Ann Arbor ePPN = +15m.1s., ePPPN = +17m.13s., eSSN = +26m.49s., eSSS = +30m.49s.

Continued on next page.

De Bilt iPPZ = +14m.47s.
Bidston i = +12m.12s., ePP = +14m.51s., e = +21m.46s., ePS = +22m.31s.
Budapest iPE = +11m.59s., iE = +12m.5s., iEN = +12m.11s., P_cPN = +12m.23s., eE = +12m.39s., eN = +12m.53s., iN = eE = +13m.15s., iN = +14m.3s. and +21m.53s., iE = +21m.59s. and +22m.15s., iN = +22m.21s.
Bucharest PPE = +14m.59s., SE = +21m.51s., PSE = +22m.26s.
Ottawa e = +26m.37s. = SS +3s., eN = +31m.25s. = SSSS −11s.
Rathfarnham Castle i = +21m.30s. and +22m.2s., +26m.9s., +30m.30s., e = +40m.17s.
Uccle ePP = +14m.50s., PSN = +22m.40s., SSN = +26m.59s.
Kew iNZ = +12m.6s., ePPN = +15m.3s., i = +22m.18s., ePSN = +22m.53s., eSSE = +27m.13s.
Little Rock iEN = +12m.16s., ePPEN = +14m.58s.
Belgrade iS = +22m.6s.
Stuttgart eP_cP = +12m.33s., e = +14m.7s., ePPP = +16m.56s., eSEN = +27m.7s., ePS = +22m.43s.
Vermont e = +26m.23s., eSS = +26m.55s., eSS = +27m.20s., e = +33m.7s.
Strasbourg i = +12m.38s., PS = +23m.7s., SS = +27m.37s., SSS = +30m.27s.
Zagreb i = +12m.21s., iNW = +22m.22s., eNE = +22m.30s., e = +28m.1s., eNW = +32m.7s.?
Laibach i = +12m.49s. and +13m.34s.
Paris PP = +15m.31s.
East Machias e = +32m.17s. and +42m.9s.
Jersey i = +14m.43s., +17m.47s., +22m.41s., and +24m.20s.
Riverview ePN = +12m.12s., eEN = +12m.51s.
Ksara iPP = +15m.25s., iPS = +23m.14s.
Weston SS = +29m.21s., SSS = +33m.36s.
Philadelphia eSS = +27m.45s., eSSS = +31m.24s.
Adelaide e = +14m.13s. and +19m.11s., ePS = +23m.20s., i = +28m.25s., e = +33m.5s.
Columbia e = +19m.31s., ePS = +23m.52s., eSS = +28m.30s.
Marseilles e = +12m.7s., +22m.20s., ePS = +22m.34s.
Melbourne iS = +23m.20s., i = +28m.40s. = SS +3s.
Perth PP = +16m.2s., SS = +29m.7s., SSS = +33m.7s., SSSS = +35m.32s., ? = +43m.22s.
Bagnères eSS = +27m.37s.
Helwan i = +12m.52s.
Toledo pPZ = +13m.36s., PPEN = +16m.31s., S_cSN = +23m.52s., PSN = +24m.53s., PKKPN = +30m.32s., SSSE = +33m.17s., P_cPPKPE = +35m.23s., GN = +37m.37s., PKP,PKPN = +38m.47s., PKP,PKSN = +42m.25s.
Algiers SKS = +23m.26s., PS = +25m.7s.?
Christchurch SKS = +23m.28s., GE = +38m.2s.
San Fernando eSKS = +22m.57s., SS = +30m.53s.
Huancayo eSKKS = +27m.31s., eSKKS = +27m.43s., ePS = +31m.16s., e = +36m.21s., SS = +38m.16s.
La Paz iPPN = +21m.25s., iSKPN = +22m.43s., iPPP = +24m.13s., iSKSP = +32m.1s., SSN = +39m.7s.
Cape Town iPP = +22m.54s., iSKP = +23m.5s., iE = +23m.55s., ePPP = +26m.1s., iS_cP_cS = +26m.34s., iE = +27m.41s., iPSKSE = +33m.6s., iN = +33m.51s., iPPSE = +35m.35s., iPPSN? = +35m.38s., iN = +40m.28s., iSSE = +42m.3s., iSSSN = +47m.34s., iSSSE = +51m.36s.
Long waves were also recorded at Tananarive, San Juan, Ivigtut, and Tortosa.

Nov. 2d. 20h. 46m. 3s. Epicentre 38°·3N. 141°·9E. R.1.
(as on 1933 Oct. 11d. and near 38°·4N. 142°·0E., the position determined by Japanese stations).

A = −·6176, B = +·4841, C = +·6198 ; δ = −7 ;
D = +·617, E = +·787 ; G = −·488, H = +·382, K = −·785.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Isinomaki	0·5	286	0 13	+ 6	0 27	+14	—	—
Sendai	0·9	268	0 11k	− 2	0 25	+ 2	—	—
Mizusawa	1·0	324	i 0 13k	− 1	—	—	—	—
Yamagata	1·2	268	0 18k	+ 1	0 35	+ 4	—	—
Hukusima	1·3	244	0 17k	− 1	0 36	+ 3	—	—
Miyako	1·3	3	0 18a	0	0 35	+ 2	—	—
Morioka	1·5	338	0 19k	− 2	0 38	− 1	—	—
Onahama	1·6	210	0 21k	− 2	0 39	− 2	—	—
Akita	2·0	315	0 28k	− 1	0 57	+ 6	—	—
Mito	2·2	211	0 33k	+ 2	0 56	− 1	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Hatinohe	2·3	353	0 28	− 5	0 58	− 1	—	—
Niigata	2·3	261	0 37a	+ 4	1 8	+ 9	—	—
Utunomiya	2·4	223	0 35k	+ 1	1 3	+ 1	—	—
Kakioka	2·5	214	0 34k	− 2	0 56	− 8	—	—
Tukubasan	2·6	215	0 35k	− 2	1 6	− 1	—	—
Aomori	2·7	341	0 37	− 2	1 9	0	—	—
Tyosi	2·7	198	0 40k	+ 1	0 59	−10	—	—
Kumagaya	3·0	223	0 43k	0	1 13	− 4	—	—
Maebasi	3·0	230	0 43k	0	1 5	−12	—	—
Komaba	3·2	214	0 43	− 3	1 19?	− 3	—	—
Takada	3·2	248	0 47k	+ 1	1 24	+ 2	—	—
Tokyo, Cent. Met. Obs.	3·2	213	0 47k	+ 1	1 25	+ 3	—	1·7
Tokyo, I.U.	3·2	213	0 44a	− 2	1 21	− 1	—	—
Mitaka	3·3	217	0 45	− 2	1 24	− 1	—	—
Oiwake	3·3	234	0 44k	− 3	1 22	− 3	—	—
Katuura	3·4	203	0 50	+ 1	1 31	+ 4	—	—
Nagano	3·4	242	0 50k	+ 1	1 27	0	—	—
Yokohama	3·4	213	0 48k	− 1	1 26	− 1	—	—
Kamakura	3·5	213	0 52	+ 2	1 32	+ 2	—	—
Hakodate	3·6	345	1 0a	P*	1 35	+ 3	—	—
Hunatu	3·8	223	0 56a	+ 2	1 37	0	—	—
Kohu	3·8	227	0 56k	+ 2	1 41	+ 4	—	—
Matumoto	3·8	237	0 51k	− 3	1 39	+ 2	—	—
Mera	3·8	206	0 56	+ 2	1 40	+ 3	—	—
Urakawa	3·9	9	0 46	−10	1 36	− 4	—	—
Misima	4·0	217	0 58a	+ 1	1 42	0	—	—
Numadu	4·0	218	0 56	− 1	1 46	+ 4	—	—
Ito	4·1	216	0 59a	+ 1	1 39	− 6	—	—
Muroran	4·1	349	0 58a	0	1 57	S*	—	—
Toyama	4·1	248	1 0k	+ 2	1 43	− 2	—	—
Wazima	4·1	258	0 59k	+ 1	2 12	S_g	—	—
Husiki	4·2	251	0 59k	− 1	1 56	+ 8	—	—
Iida	4·3	231	1 4	+ 3	1 54	+ 4	—	—
Takayama	4·3	242	1 4k	+ 3	1 58	+ 8	—	—
Kanazawa	4·6	249	1 3k	− 3	2 8	+10	—	—
Obihiro	4·7	11	1 2	− 5	2 2	+ 2	—	—
Omaesaki	4·8	219	1 10	+ 2	2 3	0	—	—
Sapporo	4·8	355	1 9k	+ 1	2 4	+ 1	—	—
Hamamatu	4·9	225	1 12k	+ 2	2 12	+ 7	—	—
Gihu	5·0	237	1 13k	+ 2	2 8	0	—	—
Kusiro	5·0	22	0 50	−21	1 48	−20	—	—
Nagoya	5·1	233	1 16a	+ 3	2 16	+ 6	—	2·6
Ibukisan	5·3	239	1 24k	P*	2 21	+ 6	—	—
Asahigawa	5·5	4	1 20	+ 2	2 21	+ 2	—	—
Hatidyozima	5·5	200	1 19k	+ 1	2 11	− 9	—	—
Hikone	5·5	238	1 20a	+ 2	2 23	+ 3	—	—
Kameyama	5·6	233	1 19a	− 1	2 20	− 3	—	—
Tu	5·6	233	1 26k	+ 6	2 33	+10	—	—
Nemuro	5·7	28	1 16	− 5	2 18	− 7	—	—
Kyoto	6·0	239	1 25	0	2 32	− 1	—	—
Miyadu	6·0	245	1 24	− 1	2 35	+ 2	—	—
Yagi	6·2	234	1 29	+ 1	2 40	+ 2	—	—
Osaka	6·3	237	1 31	+ 1	2 49	+ 8	—	—
Osaka B	6·3	237	1 30a	0	3 26	S_g	—	—
Toyooka	6·3	246	1 31k	+ 1	2 40	− 1	—	3·7
Kobe	6·5	239	1 33k	+ 1	2 39	− 7	—	—
Sumoto	6·9	237	1 37a	− 1	3 5	+ 9	—	4·0
Wakayama	6·9	237	1 37a	− 1	2 55	− 1	—	—
Tokusima	7·3	237	1 43k	− 1	3 30	S*	—	—
Okayama	7·4	243	1 45k	0	3 9	0	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tadotu		7·7	241	1 48a	− 1	3 36	S*	—	—
Muroto		8·1	233	1 55a	0	3 43	+17	—	—
Koti		8·3	238	1 56a	− 2	3 13	−18	—	—
Ootomari		8·4	4	1 33	−26	3 57	+23	—	—
Kure		8·5	245	1 50k	−10	3 36	0	—	—
Hamada		8·6	250	2 5	+ 3	3 38	− 1	—	—
Hirosima		8·6	246	2 2	0	3 47	+ 6	—	—
Matuyama		8·7	242	2 3a	0	4 28	S_g	—	—
Vladivostok		8·9	306	2 2	− 4	3 59	+13	—	5·1
Simidu		9·1	236	2 12a	+ 3	3 56	+ 5	—	—
Uwazima		9·1	239	2 11a	+ 2	4 10	+19	—	—
Ooita		9·8	242	2 21	+ 3	4 52	S*	—	—
Simonoseki		9·9	248	2 22	+ 3	4 38	+27	—	—
Hukuoka		10·5	247	i 2 27a	− 1	i 4 29	+ 3	—	6·6
Hukuoka B		10·5	247	i 2 27a	− 1	i 4 25	− 1	—	6·5
Kumamoto		10·6	242	2 30a	+ 1	4 49	+21	—	—
Miyazaki		10·7	237	2 30a	− 1	4 21	−10	—	—
Saga		10·7	245	2 34	+ 3	5 42	S_g	—	—
Husan		10·8	256	i 2 32a	0	4 27	− 6	—	5·0
Taikyu		10·9	261	i 2 37a	+ 4	i 4 38	+ 2	5·6	6·5
Ituhara		11·0	252	2 36	+ 1	5 7	S_g	—	—
Unzendake		11·0	243	2 57a	+22	5 29	S*	—	—
Titizima		11·2	179	3 2	+25	—	—	—	—
Nagasaki		11·3	244	2 37a	− 2	4 44	− 1	—	—
Kagosima		11·5	238	2 43	+ 1	5 48	S_g	—	—
Keizyo		11·8	271	i 2 47a	+ 1	i 5 2	+ 4	—	7·2
Zinsen	N.	12·1	271	i 2 51a	+ 1	i 5 2	− 3	—	5·7
Tomie		12·2	246	2 50a	− 1	4 49	−19	—	—
Heizyo		12·6	279	2 57a	+ 1	i 6 3	S*	—	7·4
Sinkyo		13·7	300	3 7	− 4	4 53	−51	—	—
Nake		14·4	230	3 17a	− 4	6 8	+ 7	—	—
Yingkow		15·4	285	3 15a	−19	—	—	—	—
Dairen		15·9	279	3 15	−25	6 5	−31	—	—
Naha		17·0	229	3 50	− 4	7 7	+ 5	—	—
Zi-ka-wei		18·2	253	i 4 6	− 3	7 26	− 3	—	12·3
Nanking		19·8	259	i 4 23	− 4	i 8 17	+15	10·6	12·4
Chiufeng		20·0	284	i 4 24	− 6	8 8	+ 2	9·4	11·5
Isigakizima		20·6	232	4 26	−10	8 10	− 8	—	—
Azinkoto		21·0	238	4 40k	0	8 31	+ 5	—	—
Giran		21·8	238	4 48k	− 1	8 48	+ 6	—	—
Taihoku		21·8	238	4 48	− 1	8 40	− 2	—	13·9
Karenko		22·4	236	5 16	PP	9 22	SS	—	—
Taityu		22·9	237	4 57	− 3	9 40	SS	—	—
Arisan		23·3	236	4 18	−46	8 27	−43	—	—
Taito		23·6	235	5 5	− 1	9 17	+ 1	—	—
Tainan		24·0	236	5 9	− 1	9 24	+ 1	—	—
Hokoto		24·1	238	4 59	−12	9 20	− 5	—	—
Takao		24·3	235	5 40k	+27	9 56	+28	—	—
Kosyun		24·4	233	5 10	− 4	9 41	+11	—	—
Hong Kong		28·6	243	5 49a	− 4	10 34	− 8	13·3	15·8
Manila		30·1	223	i 6 3a	− 3	10 51	−15	—	—
Palau		31·7	194	5 48	−32	10 52	−39	—	—
Phu-Lien		35·0	250	i 6 47	− 2	i 12 15	− 6	15·9	23·0
Semipalatinsk		44·4	307	i 8 3	− 5	e 14 37	− 4	30·0	—
College		47·7	32	e 8 40	+ 6	e 15 23	− 6	e 23·2	—
Calcutta	E.	48·1	267	8 41	+ 4	15 33	− 1	23·1	31·5
Almata		48·2	298	8 33	− 5	15 34	− 2	—	26·5
Frunse		50·0	298	e 9 6	+15	e 15 53	− 8	25·4	—
Andijan		52·2	295	9 7	− 1	—	—	28·9	—
Dehra Dun		52·3	281	8 47	−22	16 27	− 6	26·8	32·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Medan		52·5	239	9 1	− 9	i 16 26	− 9	e 24·9	—
Tchimkent		53·6	299	e 9 20	+ 2	e 17 10	+20	—	—
Honolulu		54·0	89	9 29	+ 8	e 16 17	−39	—	—
Tashkent		54·2	297	i 9 20	− 3	i 16 52	− 6	27·1	—
Sitka		55·0	41	e 9 37	+ 8	17 7	− 2	e 26·8	—
Batavia		55·1	224	i 9 28	− 2	i 17 8	− 3	e 32·9	—
Soengei Langka		55·4	226	9 21	−11	17 21	+ 6	e 29·9	—
Samarkand		56·4	296	e 9 35	− 4	17 25	− 3	—	29·9
Hyderabad		58·7	267	9 56	+ 1	17 56	− 3	26·9	36·9
Bombay		62·2	272	i 10 16	− 4	18 37	− 8	29·9	37·7
Kodaikanal	E.	63·7	262	i 10 23	− 7	i 18 56	− 8	i 29·7	34·1
Colombo		63·9	257	10 24	− 7	18 58	− 8	31·7	41·0
Seattle		66·1	57	e 11 4	+18	19 35	+ 1	e 27·1	—
Moscow		66·2	323	i 10 43	− 4	i 19 29	− 6	31·9	36·4
Pulkovo		67·0	329	i 10 45	− 7	19 34	−11	33·9	38·3
Baku		67·6	304	i 10 52	− 4	20 14	PS	—	—
Apia		67·8	129	e 10 42	−15	e 19 44	−10	e 30·2	—
Grozny		68·7	309	i 11 1	− 2	e 19 59	− 6	—	—
Piatigorsk		69·9	310	11 5	− 5	e 20 1	−19	30·9	—
Tiflis		70·1	307	i 11 6	− 5	20 13	− 9	28·9	44·6
Scoresby Sund		70·2	354	11 16	+ 4	—	—	37·9	—
Ukiah		70·2	55	e 11 1	−11	20 17	− 7	e 31·9	—
Erevan		71·2	306	11 18	0	20 38	+ 3	35·6	—
San Francisco		71·4	56	e 11 3	−16	—	—	—	—
Berkeley		71·5	56	e 11 9	−11	e 20 13	−26	—	—
Upsala		71·7	334	i 11 15	− 6	i 20 31	−10	e 30·9	44·5
Branner		71·8	56	e 11 14	− 8	i 20 20	−23	—	—
Saskatoon		71·8	37	e 11 12	−10	i 20 30	−13	—	—
Sotchi		72·1	311	i 11 18	− 5	e 20 37	− 9	39·4	—
Lick		72·2	56	e 11 19	− 5	e 20 37	−10	—	—
Riverview		72·6	171	e 11 17	− 9	i 20 40	−12	e 34·4	38·4
Sydney		72·7	171	e 9 27	−120	i 20 47	− 6	46·7	55·1
Butte		73·2	43	e 11 27	− 3	e 20 45	−14	30·9	—
Adelaide		73·3	182	i 11 21	−10	i 20 43	−17	—	42·3
Bozeman		73·6	44	—	—	20 56	− 8	e 31·1	—
Fresno	N.	73·7	55	e 11 33	0	—	—	—	—
Theodosia		73·7	314	i 11 29	− 4	i 20 57	− 8	37·4	—
Perth		74·3	202	11 37	+ 1	i 21 2	−10	34·9	38·0
Simferopol		74·4	315	i 11 33	− 4	i 21 2	−11	35·9	—
Tinemaha		74·5	54	e 11 36	− 1	e 21 6	− 8	—	—
Yalta		74·7	314	i 11 33	− 6	i 21 1	−16	28·9	—
Sebastopol		75·0	315	i 11 36	− 4	e 21 8	−12	36·9	—
Santa Barbara		75·1	57	e 11 39	− 2	e 21 11	−10	—	—
Bergen		75·1	339	i 11 38k	− 3	21 12	− 9	e 34·0	40·0
Haiwee		75·3	55	e 11 37	− 5	e 21 10	−14	—	—
Melbourne		76·2	176	i 12 27	+40	21 17	−17	32·6	39·4
Lemburg		76·3	324	e 11 36	−12	e 21 58	+23	e 39·1	51·4
Pasadena		76·3	56	e 11 40	− 8	i 21 22	−13	e 31·1	—
Mount Wilson		76·4	56	i 11 42	− 6	e 21 22	−14	—	—
Czernowitz		76·5	321	i 11 26	−23	21 12	−25	35·0	48·6
Copenhagen		76·7	333	e 11 45	− 5	21 29	−10	32·9	—
Riverside		77·0	56	e 11 47	− 5	e 21 38	− 5	—	—
La Jolla		77·7	57	e 11 52	− 4	e 21 37	−14	—	—
Bucharest		79·1	318	e 11 58	− 5	21 54	−12	37·6	50·3
Hamburg		79·2	333	i 11 58a	− 6	i 21 57	−10	e 33·9	44·0
Budapest		80·3	324	i 12 8k	− 1	22 10	− 9	42·4	51·4
Prague		80·3	328	i 12 5a	− 4	22 7	−12	e 33·9	49·9
Ksara		80·5	305	i 12 3a	− 7	i 22 9	−12	38·6	43·6
Jena		80·7	330	e 12 6	− 6	e 22 10	−13	e 34·9	43·9
Göttingen		80·8	332	i 12 7k	− 5	22 49	+25	e 38·9	51·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Vienna		80·9	326	i 12 10a	− 3	e 22 27	+ 2	e 40·4	53·9
Cheb		81·1	330	e 12 10	− 4	e 22 18	− 9	e 39·9	44·9
Edinburgh		81·2	341	i 12 9	− 5	i 22 18	−10	35·9	51·9
Belgrade		81·6	322	i 12 11a	− 5	i 22 24	− 9	e 38·6	45·2
Sofia		81·7	319	i 12 14	− 3	e 22 21	−13	e 37·1	52·0
Durham		81·8	339	12 14	− 3	22 24	−11	—	51·9
De Bilt		82·2	334	i 12 14a	− 5	22 25	−14	e 37·9	43·9
Graz		82·2	326	i 12 11	− 8	i 22 25	−14	e 38·9	53·0
Tucson		82·3	54	e 12 19	− 1	e 22 29	−11	e 34·1	—
Stonyhurst		82·9	340	12 20	− 3	i 22 45	− 1	36·9	42·2
Zagreb		82·9	325	i 12 18a	− 5	i 22 34	−12	e 37·9	46·0
Bidston		83·4	340	i 12 24	− 1	i 22 46	− 5	e 34·9	44·4
Laibach		83·4	326	i 14 14	?	i 22 43	− 8	e 53·8	—
Stuttgart		83·4	330	i 12 22	− 3	i 22 40	−11	e 38·9	52·6
Uccle		83·4	335	i 12 20a	− 5	i 22 39	−12	36·9	40·8
Strasbourg		84·1	331	i 12 23a	− 6	i 22 44	[− 8]	e 34·9	50·4
Kew		84·4	337	i 12 27a	− 3	22 50	[− 5]	e 37·9	42·5
Oxford		84·4	338	i 12 23	− 7	i 22 47	[− 8]	e 33·2	52·3
Rathfarnham Castle		84·4	341	i 12 31	+ 1	i 22 54	[− 1]	35·3	45·4
Chur		84·8	330	e 12 26	− 6	e 22 47	[−11]	—	—
Zurich		84·8	331	e 12 26a	− 6	e 22 37	[−21]	—	—
Basle		85·0	331	e 12 28	− 5	e 22 52	[− 7]	—	—
Padova		85·0	327	i 12 21	−12	i 22 40	[−19]	e 43·9	56·9
Wellington		85·0	155	12 38	+ 5	22 44	[−15]	39·9	44·9
Des Moines		85·4	37	e 12 33	− 2	e 22 50	[−12]	e 43·0	—
Neuchatel		85·7	331	e 12 30	− 7	e 22 54	[−10]	—	—
Besançon		85·8	331	i 12 32	− 5	e 22 49	[−16]	e 38·9	—
Paris		85·8	334	i 12 34a	− 3	e 23 23	+ 7	28·9	55·9
Helwan		86·0	304	12 29	− 9	22 57	[− 9]	—	54·4
Madison		86·3	34	e 12 33	− 7	e 23 0	[− 8]	—	—
Christchurch		86·4	157	e 12 36k	− 4	i 22 53	[−16]	40·2	—
Florence		86·6	326	12 37	− 4	22 57	[−14]	—	—
Jersey		86·9	337	i 12 37	− 6	i 23 12	[− 1]	37·7	54·1
Capodimonte	N.	87·5	323	e 12 53	+ 8	e 23 15	[− 2]	43·9	56·9
Chicago		88·1	34	e 12 39	− 9	e 23 3	[−18]	e 36·0	—
Florissant		89·2	37	i 12 48	− 6	e 23 15	[−13]	—	45·0
Ann Arbor		89·4	31	i 12 57	+ 2	i 23 33	[+ 4]	e 41·8	49·8
Marseilles		89·4	330	i 12 26	−29	22 57?	[−32]	e 37·0	45·9
Ottawa		89·7	25	12 51	− 5	23 37	[+ 6]	e 39·9	—
Little Rock		91·3	42	e 13 0	− 3	e 23 52	[+12]	e 40·4	—
Vermont		91·4	24	e 12 55	− 9	e 23 26	[−15]	e 35·7	—
Bagnères		91·6	333	e 17 9	PP	e 23 30	[−12]	e 34·9	51·9
Carloforte		91·6	325	12 15	−50	34 15	SSS	—	—
Barcelona		92·3	331	e 13 10	+ 2	e 23 27	[−19]	e 37·4	51·8
East Machias		92·8	20	e 16 55	PP	e 23 31	[−18]	e 43·1	—
Pennsylvania		93·0	29	e 16 43	PP	e 24 33	+ 9	e 53·9	—
Tortosa	N.	93·4	331	e 16 4	PP	e 26 19	?	e 40·9	55·0
Oak Ridge		93·7	23	i 13 13	− 1	e 24 14	−16	e 46·9	—
Weston		93·8	23	i 13 11	− 4	—	—	—	—
Philadelphia		94·7	27	e 19 5	PPP	i 23 47	[−12]	i 49·1	—
Toledo		95·8	334	i 13 23	− 1	23 56	[− 9]	43·9	55·7
Algiers		95·9	327	13 18	− 7	24 14	[+ 9]	43·9	51·9
Columbia		97·5	34	—	—	e 24 1	[−13]	e 44·1	—
Almeria		98·0	332	e 13 22	−12	e 24 12	[− 4]	e 46·0	58·3
Granada		98·1	333	13 30	− 5	e 24 47	{+ 8}	—	—
Tacubaya		98·7	57	i 17 43	PP	—	—	e 47·7	—
San Fernando		99·6	335	e 13 41	− 1	i 24 3	[−20]	46·0	—
Tananarive		104·9	258	e 18 51	PP	24 37	[−12]	43·7	60·1
San Juan		117·5	30	e 17 9	?	e 36 0	SS	e 47·8	—
Cape Town	E.	134·8	258	i 21 46	PP	i 39 59	SS	e 63·6	67·9
	N.	134·8	258	i 21 45	PP	i 39 53	SS	e 64·7	75·4
Huancayo		137·8	62	e 19 9	[−10]	28 48	{−23}	65·2	—
La Paz		145·8	57	19 32	[− 4]	30 4	{+ 5}	68·0	80·4
Santiago		153·3	89	e 20 35	{+21}	—	—	—	—
La Plata		163·8	84	19 33	[−25]	—	—	68·9	—
Rio de Janeiro	N.	163·9	17	e 19 57	[− 1]	i 31 27	{−13}	i 44·6	—

For Notes see next page.

NOTES TO NOV. 2d. 20h. 46m. 3s.

Additional readings :—
Kobe i = +1m.50s. and +2m.22s.
Sumoto e = +2m.3s., SEN = +2m.51s.
Toyooka SEZ = +2m.48s.
Hukuoka B iPE = +2m.28s.
Zi-ka-wei PPN = +4m.21s., PPPN = +4m.26s., PPPPN = +4m.30s., iZ = +4m.46s., iN = +4m.54s., iZ = +5m.7s., iN = +5m.23s., iZ = +5m.42s., +6m.33s., iE = +6m.44s., iZ = +6m.57s., SSZ? = +7m.57s., SSSZ? = +8m.10s., iN = +8m.26s., iZ = +9m.18s., iN = +9m.58s., iE = +10m.6s., iN = +10m.37s., iZ = +10m.57s., iE = +11m.37s.
Nanking PP = +4m.42s., iZ = +10m.2s.
Taihoku SE = +8m.46s.
Hong Kong ? = +6m.5s., PP = +6m.46s., P_cP = +8m.44s., SS = +11m.47s., S_cS = +16m.56s.
Phu-Lien PP = +8m.7s.
College ePPP = +11m.2s., S = +15m.37s., iS = +15m.50s., SS = +18m.31s.
Frunse e = +10m.0s.
Medan iPE = +9m.10s.
Honolulu eP = +9m.33s., i = +10m.10s., PP = +12m.11s., PPP = +12m.53s., e = +13m.40s., eS = +16m.47s., S = +16m.55s., PS = +18m.9s., SS = +22m.0s.
Sitka iP = +9m.41s., SS = +20m.54s., SSS = +23m.27s.
Bombay P_cPEN = +11m.4s., PSEN = +19m.3s., S_cSEN = +20m.1s., SSEN = +22m.49s.
Kodaikanal iPPE = +12m.34s., iPPPE = +14m.17s., iPSE = +19m.14s., iSSE = +23m.1s., iSSSE = +25m.9s.
Seattle e = +11m.42s., eSS = +24m.21s.
Apia ePP = +12m.44s., eSS = +23m.30s., e = +28m.4s. =SSSS +25s.
Tiflis ePPE = +13m.45s., ePPPEN = +15m.42s., eN = +21m.7s., SSEN = +25m.23s.
Ukiah eSS = +24m.5s. and +24m.34s., eSSS = +27m.46s., and +28m.19s.
Berkeley eZ = +11m.13s., eZ = +11m.15s., e = +11m.17s., i = +11m.27s., eE = +11m.31s., eN = +11m.35s., e = +20m.20s., eE = +20m.30s., iN = +20m.33s.
Upsala SS = +25m.50s.
Riverview eL_qE = +30·4m.
Sydney SS = +29m.27s., SSS = +36m.21s.
Butte ePP = +14m.18s.
Adelaide e = +12m.56s., i = +16m.23s., iPS = +21m.29s., i = +22m.27s., iSS? = +25m.40s., i = +28m.53s. and +29m.6s.
Bozeman ePS = +21m.10s.
Perth P_cP = +11m.57s., PP = +14m.54s., PPP = +16m.37s., PS = +21m.37s., ? = +25m.22s., SS = +25m.57s., ? = +30m.37s.
Czernowitz PPN = +11m.32s., PPPN = +16m.19s.
Pasadena iPZ = +11m.46s.
Melbourne SS = +26m.1s., i = +29m.37s. =SSS +13s.
Copenhagen e = +12m.5s., iPP = +14m.38s., PPP = +16m.23s., SS = +26m.15s., SSS = +29m.57s.
Bucharest PPE = +15m.1s., PPN = +15m.4s., PSEN = +22m.29s., SSN = +26m.57s.
Hamburg eSSNZ = +27m.57s.
Budapest iN = +12m.10s., P_cPE = +12m.16s., iN = +12m.29s. and +12m.43s., iE = +12m.49s., PPN = +13m.6s., PPE = +15m.14s., eE = +15m.37s., S_cSE = +22m.37s., PSN = +22m.41s., PSE = +22m.51s., SSN = +23m.45s., SSE = +27m.37s. iN = +27m.37s., iE = +31m.27s.
Prague ePP = +15m.6s., ePS = +22m.39s.
Ksara iPS = +22m.55s.
Jena eEW = +27m.57s., eNS = +28m.17s., eEN = +30m.45s.
Göttingen iPP = +15m.6s., ePPPN = +17m.15s., iEN = +22m.13s., iPS = +23m.28s., eSSN = +27m.57s., eSSSN = +31m.33s.
Vienna PP = +15m.10s., SS = +27m.49s.
Edinburgh i = +13m.4s., +19m.0s., +22m.51s., +25m.6s., +27m.49s., +31m.19s., +34m.0s., and +35m.27s.
Belgrade iP = +12m.12s., iPPNE = +15m.20s., iNW = +19m.39s., iSNW = +22m.34s., iNE = +22m.47s.
Sofia PSNE = +22m.50s.
De Bilt iPPZ = +15m.22s., eSS = +28m.2s.
Tucson e = +21m.43s., ePS = +23m.24s., eSS = +27m.37s. and +28m.17s., eSSS = +31m.42s.
Stonyhurst i = +23m.0s., SS = +28m.0s.
Zagreb i = +12m.30s., iZ = +12m.39s., iPP = +15m.33s., iZ = +22m.41s., eZ = +23m.34s., e = +28m.57s.? and +32m.21s.
Bidston i = +12m.46s., iPP = +15m.41s., i = +23m.8s., +24m.5s., and +29m.32s.
Laibach iNW = +15m.20s. and +17m.14s. =PPP −2s.

Continued on next page.

Stuttgart iP$_c$PZ = +12m.43s., ePP = +15m.43s., iPS = +23m.47s., e = +29m.33s., eSSS = +32m.30s.
Uccle i = +12m.44s., iPPN = +15m.36s., iPPPN = +17m.27s., iN = +19m.3s., iSSE = +28m.5s.
Strasbourg iZ = +12m.45s., +12m.59s., and +14m.34s., PP = +15m.43s., PPP = +17m.59s., ePPPP = +18m.29s., eSKS = +22m.1s., iPS = +22m.59s. i = +24m.59s., SS = +28m.57s.?, SSS = +31m.57s.?
Kew iZ = +12m.49s. and +14m.24s., iPPNZ = +15m.42s., iS$_c$S = +23m.8s., iEN = +24m.6s., iSSE = +28m.36s., iNZ = +29m.23s., iSSSE = +31m.38s., eZ = +33m.28s.
Rathfarnham Castle i = +12m.43s., P? = +15m.44s., i = +28m.7s.
Chur e = +15m.41s. = PP − 3s.
Wellington pP? = +12m.51s., PP = +15m.44s., S$_c$S? = +23m.6s., PPS = +23m.52s., SS = +28m.22s., i = +28m.47s., SSS = +30m.57s.? i = +34m.55s. (May be SSSS or L$_q$).
Helwan pP = +12m.52s., PP = +15m.53s., sS = +23m.27s., i = +30m.2s.
Madison eSS = +28m.44s., e = +35m.59s.
Christchurch iP = +12m.46s., iPS = +24m.3s.
Jersey PP? = +15m.29s., PPP? = +17m.16s., SKKS? = +23m.18s., PS? = +24m.4s., SS = +29m.7s., SSS = +32m.35s.
Chicago eP = +13m.1s., SKS = +23m.5s., iS = +23m.23s., S = +23m.41s., PS = +24m.53s., eSS = +29m.13s. and +29m.39s.
Florissant ipPZ = +13m.6s., eSKKSE = +23m.35s., iSE = +23m.36s., isS = +24m.10s., eEZ = +40m.3s., eGEZ = +41m.2s.
Ann Arbor ePP = +16m.45s., iSKS = +23m.15s., iPS = +25m.15s., eSSN = +30m.9s., eSSSN = +34m.9s.
Marseilles iSKSE = +22m.29s., eN = +22m.50s., iS?N = +23m.2s., PSE? = +23m.21s., eN = +23m.27s.
Ottawa SS = +29m.39s., eE = +36m.27s.; T$_0$ = 20h.46m.6s.
Little Rock ipPEN = +13m.18s., iPPE = +15m.48s., esSEN = +24m.11s., eN = +24m.19s.
Vermont ePP = +17m.55s., iS = +23m.55s., e = +27m.40s., eSS = +30m.27s.
Bagnères eS = +23m.50s.
East Machias iS = +24m.8s., eSS = +30m.22s., SS = +30m.55s., e = +37m.43s.
Oak Ridge iPPZ = +17m.4s., iPS = +25m.32s.
Philadelphia iS = +21m.57s., e = +23m.50s., iS = +24m.20s., eSS = +30m.2s., eSS = +30m.57s.
Toledo iPPZN = +17m.17s., PPPN = +19m.19s., SKKSN = +24m.18s., SKKKSEN = +24m.24s., SN = +24m.34s., PSN = +25m.59s., PPSN = +26m.32s., iSSN = +31m.9s., PKP,PKPE = +38m.36s., GN = +39m.57s., iSKKKS$_2$E = +41m.38s.
Algiers ePP = +17m.5s., ePPP = +19m.9s., SS = +41m.54s.
Columbia eSS = +31m.29s.
Almeria PP = +18m.23s.
San Fernando PP = +17m.48s., PS = +26m.40s., SS = +32m.3s., SSS = +35m.49s.
Tananarive PPS = +27m.50s., SS = +32m.58s.
Cape Town i = +22m.11s., iSKP = +22m.49s., iPPP = +24m.44s., iN = +26m.46s., iE = +26m.49s., iE = +28m.34s., and +39m.32s., iN = +39m.36s. and +44m.30s., iE = +45m.56s.
Huancayo e = +19m.28s., +20m.23s., and +21m.49s., ePP = +22m.15s., SKP = +22m.50s., eSS = +39m.53s., SS = +40m.16s., e = +44m.31s., SSS = +45m.49s., eSSS = +46m.19s., e = +49m.3s.
La Paz iPKP$_2$E = +19m.40s., iPKP$_2$N = +19m.44s., iSPKPE = +21m.50s., PPN = +23m.2s., SKSP = +33m.26s., SSN = +41m.58s., SSS = +47m.33s., SSSS = +51m.13s., L$_q$ = +61·0m.
Rio de Janeiro iPPN = +24m.20s.

Nov. 2d. Readings also at 0h. (Tiflis and San Javier), 3h. (near San Javier and Santiago), 4h. (near Manila), 5h. (near Almata and Frunse), 6h. (Medan, Baku, Tiflis, Tashkent, Helwan, and Ksara), 9h. (Baku, Tashkent, Ksara, Helwan, Moscow, Pulkovo, Copenhagen, Cheb, Strasbourg, Stuttgart, Paris, Marseilles, Granada, La Paz, Rio de Janeiro, near Hukuoka and Hukuoka B), 12h. (Frunse, near Andijan, and Samarkand), 14h. (Tananarive), 15h. (Batavia), 17h. (College), 21h. (near San Javier), 22h. (Nagoya, Sumoto, and near Mizusawa).

Nov. 3d. 4h. 43m. 26s. Epicentre 59°·5N. 153°·0E. N.3.

A = −·4522, B = +·2304, C = +·8616 ; δ = −8 ;
D = +·454, E = +·891 ; G = −·768, H = +·391, K = −·508.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sapporo		18·0	209	4 24	+17	—	—	—	—
Vladivostok		20·8	227	i 4 33	− 5	8 21	− 1	10·2	14·0
Mizusawa		21·7	206	e 4 47	− 1	e 8 30	−10	—	—
Kakioka		24·7	208	5 11	− 6	—	—	—	—
Maebasi		24·8	210	5 22	+ 4	—	—	—	—
Oiwake		25·0	210	5 22	+ 2	9 46	+ 5	—	—
Tokyo		25·3	205	4 52	−31	—	—	—	—
Misima		26·1	207	5 26	− 4	—	—	—	—
Keizyo		27·5	229	e 11 55	S	(11 55)	SSSS	—	—
Husan		29·0	224	—	—	e 11 2	+14	—	—
Chiufeng		30·1	247	6 7	+ 1	e 11 0	− 6	—	19·3
Zi-ka-wei	z.	35·3	231	e 6 48	− 4	—	—	21·2	23·5
Nanking		35·6	235	e 6 57	+ 3	12 26	− 4	18·3	21·6
Semipalatinsk		40·5	291	13 49	S	(13 49)	+ 5	—	—
Sverdlovsk		44·8	309	—	—	i 15 7	+20	20·6	25·0
Hong Kong		46·2	233	13 47	S	(13 47)	−80	—	27·2
Tashkent		52·4	290	7 30	?	—	—	—	22·2
Pulkovo		52·7	329	6 39	?	—	—	30·4	31·0
Calcutta	N.	57·9	260	—	—	e 17 46	− 2	—	—
Santa Barbara	z.	59·5	73	i 10 3	+ 2	—	—	—	—
Mount Wilson	z.	60·5	72	i 10 10	+ 2	—	—	—	—
Pasadena	z.	60·5	72	e 10 9	+ 1	—	—	—	—
Baku		61·9	303	e 10 42	+24	18 57	+16	30·2	38·3
Tiflis		62·9	307	e 10 26	+ 1	e 19 5	+11	32·1	37·5
Yalta		64·6	316	—	—	i 24 19	SS	e 29·2	—
Tucson		65·6	67	e 10 43	+ 1	—	—	e 38·4	—
Bombay		68·8	272	—	—	e 19 34?	−33	—	42·1
Ksara		73·3	309	e 14 14	PP	e 24 41	SS?	41·1	—
Granada		81·4	342	—	—	e 30 19	SSSS	54·6	—

Additional readings :—
Keizyo eSE = +14m.25s.
Nanking PPN = +8m.12s.
Semipalatinsk e = +18m.45s., e = +24m.1s.
Sverdlovsk e = +18m.26s. =SSS −14s.
Hong Kong S? = +18m.38s.
Tashkent e = +10m.35s.
Pasadena iPZ = +10m.16s.
Tiflis eSSS = +26m.9s.
Long waves were also recorded at Tchimkent, Frunse, Almata, Padova, De Bilt, Hyderabad, Cheb, Moscow, Upsala, Uccle, Bozeman, Strasbourg, Paris, Simferopol, Grozny, Copenhagen, Stuttgart, Prague, San Fernando, Hamburg, Kodaikanal, and Phu-Lien.

Nov. 3d. Readings also at 0h. (Mizusawa), 1h. (Mizusawa, Vladivostok, and Tashkent), 2h. (Frunse and near Andijan), 3h. (Mount Wilson and Pasadena), 5h. (Oak Ridge, St. Louis, Little Rock, Florissant, and Vladivostok), 6h. (Baku, Chiufeng, Sverdlovsk, Tiflis, Ksara, Mount Wilson, Pasadena, and Riverside), 10h. (Tacubaya), 11h. (Alicante and Balboa Heights), 12h. (near Mizusawa (2)), 13h. (near Santiago and San Javier), 14h. (near Apia), 16h. (Ksara), 17h. (near Tananarive), 20h. (Manila and Nanking), 21h. (Tiflis, Malabar, Medan, Soengei Langka, Kew, near Batavia, and near Apia), 22h. (Mizusawa and near Berkeley (2)).

Nov. 4d. 7h. 24m. 50s. Epicentre 0°·0 98°·3E. (as on 1936 March 17d.). X.

A = −·1444, B = +·9895, C = ·0000 ; δ = −4 ;
D = +·990, E = +·144 ; G = ·000, H = ·000, K = −1·000.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Medan		3·6	8	i 0 53	+ 2	—	—	—	—
Colombo		19·6	291	4 13	−12	—	—	—	11·6
Phu-Lien		22·3	22	—	—	8 10	−42	—	—
Kodaikanal	E.	23·1	297	e 5 10?	+ 8	—	—	—	—
Manila		26·8	56	5 58	+22	11 36	SSSS	16·2	19·2
Hong Kong		27·1	34	5 17	−22	9 30	−47	—	19·3
Bombay		31·4	308	e 4 10?	?	e 11 10?	−16	—	21·9
Agra	E.	33·4	326	—	—	e 11 43	−14	—	—
Nanking		37·4	29	e 7 10	0	e 13 18	+21	e 18·3	25·6
Chiufeng		43·2	20	i 7 57a	− 1	e 14 29	+ 5	—	28·2
Tashkent		48·9	331	e 2 10	?	i 15 38	− 7	e 23·4	34·8
Baku		59·6	318	e 2 12	?	e 12 6	PP	e 28·2	—
Tiflis		63·6	317	e 10 24	− 5	e 18 52	−10	e 35·2	—
Sverdlovsk		64·3	338	—	—	e 19 27	+16	32·2	38·4
Ksara		67·4	306	e 10 52	− 2	e 19 43	− 7	—	37·2
Sotchi		67·8	318	—	—	i 18 41	−73	—	—

Additional readings :—
Medan eP = +3m.9s.
Phu-Lien e = +13m.20s.
Nanking iE = +22m.4s.
Tashkent e = +16m.44s. and +21m.10s.
Ksara ePS = +20m.12s.
Long waves were also recorded at Vladivostok and Perth.

Nov. 4d. 13h. 44m. 58s. Epicentre 5°·0S. 132°·0E. (as on 1934 April 27d.). X.

A = −·6666, B = +·7403, C = −·0872 ; δ = 0 ;
D = +·743, E = +·669 ; G = +·058, H = −·065, =K −·996.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Amboina		4·0	289	i 1 5	P*	i 1 52	+10	—	—
Manila		22·4	331	i 4 57a	+ 2	i 9 2	+ 9	—	—
Batavia		25·1	266	5 20	− 1	i 9 42	− 1	—	—
Perth		30·9	208	11 2	S	(11 2)	−16	—	—
Hong Kong		32·4	328	11 32	S	(11 32)	− 9	—	18·7
Riverview		33·9	151	e 14 34	SS	—	—	—	22·1
Sydney		33·9	151	—	—	e 16 38	ScS?	18·4	19·5
Melbourne		34·9	162	—	—	i 12 23	+ 3	i 16·4	—
Nanking		39·1	341	7 25	+ 1	13 21	− 1	—	—
Adelaide		41·0	172	e 5 31	?	e 11 5	?	e 14·5	17·2
Chiufeng		47·4	343	i 8 31	− 1	15 20	− 4	—	—
Vladivostok		48·1	0	—	—	e 15 35	+ 1	19·6	—
Kodaikanal	E.	56·4	286	e 9 2?	−37	—	—	—	—
Bombay		63·0	294	e 10 2?	−23	—	—	—	—
Almata		69·2	320	e 11 19	+13	—	—	—	—
Frunse		70·5	319	e 11 13	− 1	—	—	—	—
Semipalatinsk		71·0	328	—	—	e 20 24	− 9	—	—
Andijan		71·1	316	e 11 16	− 1	—	—	—	—
Tashkent		73·4	316	i 11 31	0	20 55	− 6	e 34·0	45·6
Samarkand		74·4	313	e 11 35	− 2	—	—	—	—
Sverdlovsk		84·2	329	i 12 39	+10	22 54	[+ 1]	35·0	—
Tiflis		91·2	312	e 13 2	− 1	e 24 1	− 6	—	—
Ksara		97·9	302	e 13 36	+ 2	26 26	PS	—	—
La Paz	N.	150·7	137	e 20 3	{+ 1}	—	—	—	—

Additional readings :—
Hong Kong S? = +13m.5s.
Riverview eSN = +17m.46s., eSE = +18m.1s.
Sverdlovsk iPP = +15m.52s.
Ksara ePP = +17m.36s., ePPS = +26m.58s.

Nov. 4d. Readings also at 0h. (near Almata), 2h. (Chiufeng, Nanking, Vladivostok, Baku, Tiflis, Tashkent, Sverdlovsk, and Ksara), 5h. (Mount Wilson, Pasadena, and near Apia), 6h. (Mount Wilson, Pasadena, Sebastopol, Ksara, near Andijan, and near Apia), 8h. (Sotchi), 9h. (Batavia, Medan (2), Colombo, Nanking, Hong Kong, Manila, Bombay, Phu-Lien, Kodaikanal, Baku, Sverdlovsk, Ksara, and San Javier), 10h. (near Santiago and San Javier), 11h. (Sotchi), 12h. (Almeria), 16h. (near Neuchatel), 19h. (Mount Wilson, Pasadena, La Paz, Rio de Janeiro, Granda, De Bilt, Strasbourg, Ksara, and Tiflis), 20h. (Baku, Sverdlovsk, Tashkent, Copenhagen, Paris, Stuttgart, and near Medan), 23h. (Tashkent, Frunse, Samarkand, and near Andijan).

Nov. 5d. 7h. 37m. 8s. Epicentre 23°·7N. 141°·3E. (as on 1934 April 30d.). R.3.

$A = -\cdot7146$, $B = +\cdot5725$, $C = +\cdot4019$; $\delta = -7$;
$D = +\cdot625$, $E = +\cdot780$; $G = -\cdot314$, $H = +\cdot251$, $K = -\cdot916$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		12·1	342	e 1 38	−72	3 9	?	—	—
Kobe	E.	12·2	335	e 1 38	−73	—	—	—	5·7
Toyooka	N.	13·1	336	1 44	?	—	—	e 4·2	8·1
Hukuoka B		13·7	319	e 2 58	−13	e 5 56	+12	—	—
Mizusawa		15·4	359	3 35	+ 1	5 49	−35	—	—
Zi-ka-wei		19·2	298	4 22	+ 1	—	—	—	15·6
Vladivostok		20·9	340	e 4 43	+ 4	—	—	8·1	13·4
Manila		21·3	248	4 41	− 2	8 16	−16	—	—
Nanking		21·6	298	e 4 52	+ 6	e 9 4	SS	—	—
Chiufeng		26·8	314	e 5 40	+ 4	9 25	−47	—	14·2
Tashkent		61·5	306	—	—	e 19 23	+47	e 28·9	38·2
Sverdlovsk		65·3	324	10 35	− 6	18 17	−67	31·9	—
Tiflis		79·1	312	12 30	+27	e 20 31	?	39·9	46·9
Santa Barbara	Z.	83·7	56	e 12 25	− 2	—	—	—	—
Mount Wilson	Z.	85·0	55	e 12 32	− 1	—	—	—	—
Pasadena	Z.	85·0	55	e 12 31	− 2	—	—	—	—
Ksara		88·8	307	e 13 32	+40	e 24 25	+40	—	—

Additional readings :—
Zi-ka-wei iZ = +5m.29s.
Pasadena iZ = +12m.43s.
Long waves were also recorded at Hong Kong and Baku.

Nov. 5d. 20h. 46m. 20s. Epicentre 40°·0N. 133°·0W. N.3.

$A = -\cdot5224$, $B = -\cdot5602$, $C = +\cdot6428$; $\delta = -8$;
$D = -\cdot731$, $E = +\cdot682$; $G = -\cdot438$, $H = -\cdot470$, $K = -\cdot766$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Ferndale		6·7	83	e 2 15	P_g	—	—	—
Berkeley		8·6	101	e 2 0	− 2	e 3 32	− 7	—
Branner		8·8	103	e 2 6	+ 1	—	—	—
Lick		9·2	103	e 2 10	0	—	—	—
Fresno	N.	10·8	103	e 2 32	0	—	—	—
Seattle		10·8	42	e 2 32	0	—	—	e 3·9
Santa Barbara	Z.	11·9	114	e 3 0	+13	—	—	—
Tinemaha		11·9	99	e 2 43	− 4	—	—	—
Haiwee		12·4	103	e 2 51	− 3	—	—	—
Mount Wilson		13·2	111	i 3 10	+ 5	—	—	—
Pasadena		13·2	112	i 3 11	+ 6	—	—	—
Riverside	N.	13·8	111	e 3 16	+ 3	—	—	—
La Jolla	Z.	14·5	114	i 3 42	+20	—	—	—
Tucson		19·4	107	e 4 23	0	e 7 53	− 1	e 9·2

Additional readings :—
Berkeley eZ = +3m.28s., eE = +3m.56s., eZ = +4m.6s., eEN = +4m.38s.
Seattle e = +2m.51s. and +3m.36s.
Long waves were also recorded at other American stations.

Nov. 5d. Readings also at 0h. (Tashkent, near Balboa Heights, and near Uccle), 1h. (near San Javier), 9h. (Amboina), 11h. (near Hukuoka, Hukuoka B, Phu-Lien, and near Tiflis), 14h. (Branner and Lick), 17h. (Ksara, Tiflis, near Branner, and Lick), 19h. (near Wellington), 20h. (near Malabar), 21h. (near Santiago and San Javier), 22h. (Medan and near Samarkand), 23h. (Bombay, near Kobe, Sumoto, Toyooka, and near Branner).

Nov. 6d. 20h. 27m. 12s. Epicentre 28°·5N. 56°·8E. N.3.

A = +·4812, B = +·7354, C = +·4772 ; δ = +9 ;
D = +·837, E = −·548 ; G = +·261, H = +·399, K = −·879.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Baku	13·1	337	e 3 7	+ 4	5 38	+ 9	7·3	10·7
Samarkand	14·0	34	e 3 15	0	e 7 28	L	(7·5)	—
Erevan	15·4	322	4 36	+62	—	—	e 8·2	—
Tashkent	16·3	35	i 3 40	− 5	6 50	+ 5	e 8·4	10·8
Tiflis	16·4	327	3 43	− 3	e 6 43	− 5	8·8	—
Grozny	17·3	332	4 1	+ 3	—	—	—	—
Andijan	17·7	42	e 4 2	− 1	—	—	e 10·6	—
Ksara	18·6	291	i 4 13	− 1	7 45	+ 7	—	—
Frunse	20·3	42	e 4 35	+ 2	8 29	+17	—	—
Sotchi	20·4	324	4 32	− 2	—	—	—	—
Almata	21·9	43	e 4 53	+ 3	—	—	—	—
Theodosia	23·7	322	e 5 8	+ 1	e 9 11	− 7	—	—
Yalta	24·1	319	e 5 11	0	e 9 18	− 7	—	—
Simferopol	24·4	320	e 5 12	− 2	e 9 22	− 8	—	—
Sebastopol	24·5	319	e 5 14	− 1	e 9 28	− 4	—	—
Sverdlovsk	28·5	5	i 4 59	−53	9 40	−60	13·5	17·0

Additional readings :—
Ksara SS = +10m.14s.
Almata e = +5m.7s.
Theodosia e = +7m.48s.

Nov. 6d. Readings also at 1h. (Grozny), 3h. (near Mizusawa), 6h. (Pasadena, Mount Wilson, and near Apia), 11h. (Mount Wilson, Pasadena, Tinemaha, Tucson, Philadelphia, Tashkent, near Almata, Andijan, Frunse, Toledo, and near Granada), 12h. (Sverdlovsk, Tashkent, Chiufeng, Hong Kong, Nanking, and near Manila), 16h. (Hukuoka B), 17h. (Sverdlovsk, Tashkent (2), Ksara, Perth, Mount Wilson, and Pasadena), 18h. (Sverdlovsk), 19h. (near Samarkand), 20h. (Grozny and near San Javier), 21h. (La Paz, near Grozny, and Tiflis), 22h. (Rio de Janeiro, Mount Wilson, and Pasadena), 23h. (near Mizusawa and Nagoya).

Nov. 7d. 17h. 12m. 49s. Epicentre 36°·1N. 140°·0E. (as on 1936 Jan. 17d.). X.

A = −·6190, B = +·5194, C = +·5892 ; δ = +9.

	△	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Tukubasan	0·1	35	0 4k	+ 3	0 10	+ 7	—
Komaba	0·5	210	0 6	− 1	0 16	+ 3	—
Tokyo, Cent. Met. Obs.	0·5	206	0 0a	− 7	0 18	+ 5	—
Tokyo I.U.	0·5	206	0 8	+ 1	0 18	+ 5	0·3
Mitaka	0·6	220	0 9	0	0 20	+ 5	—
Kamakura	0·9	205	0 13	0	0 25	+ 2	—
Katuura	1·0	165	0 12	− 2	0 24	− 2	—
Nagoya	2·7	249	e 0 22	−17	1 13	+ 4	—

Nov. 7d. Readings also at 0h. (near Andijan), 5h. (La Paz, La Plata, La Jolla, Mount Wilson, Pasadena, Riverside, Haiwee, Santa Barbara, Tinemaha, Nagoya, and near Mizusawa), 6h. (Rio de Janeiro, La Paz, La Plata, Mount Wilson, Pasadena, and near Sumoto), 8h. (near Mizusawa), 12h. (near Oak Ridge), 13h. (Berkeley, Branner, Lick, San Francisco, Fresno, Mount Wilson, and Pasadena), 14h. (La Paz), 16h. (Ksara, La Paz, Rio de Janeiro, near Berkeley, and San Francisco), 19h. (Graz, Mount Wilson, and Pasadena), 22h. (Nanking), 23h. (near Tananarive).

Nov. 8d. 6h. 33m. 15s. Epicentre 36°·1N. 141°·5E. X.
(close to position given by Tokyo and as on 1931 June 13d.).

$A = -·6323$, $B = +·5030$, $C = +·5892$; $\delta = -3$;
$D = +·623$, $E = +·783$; $G = -·461$, $H = +·367$, $K = -·808$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tukubasan		1·1	276	0 13	− 3	0 27	− 1		—
Katuura		1·4	229	0 24	+ 4	0 46	+10		—
Tokyo I.U.		1·5	254	0 20	− 1	0 42	S*		—
Komaba		1·5	253	0 20	− 1	0 43	S*		—
Kamakura		1·7	244	0 27	P*	0 54	S_g		—
Susaki		2·5	235	0 40	P*	1 17	S_g		—
Mizusawa		3·0	354	e 0 34	− 9	1 8	− 9		—
Nagoya		3·8	257	e 0 54	0	1 49	S*		2·3
Kobe		5·3	256	—	—	e 2 12	− 3		2·8
Sumoto		5·6	254	e 1 54	P_g	2 41	S*		3·2

Additional readings :—
Mizusawa ePE = +38s.
Kobe eZ = +2m.21s.
Sumoto eZ = +2m.49s.

Nov. 8d. Readings also at 1h. (near Medan), 4h. (near Berkeley, Branner, Lick, and San Francisco), 6h. (Baku, Sverdlovsk, Chiufeng, Tashkent, Tiflis (2), and Vladivostok), 7h. (Ksara and near Hukuoka B), 9h. (near Mizusawa and Nagoya), 12h. (Christchurch, Adelaide, Melbourne, Riverview, Hong Kong, Tashkent, Sverdlovsk, Ksara, La Jolla, Mount Wilson, and Pasadena), 13h. (Oak Ridge and near Nagoya), 14h. (Takaka and near Wellington), 15h. (Andijan and Frunse), 22h. (near Granada and Toledo), 23h. (near Tananarive).

Nov. 9d. 6h. 8m. 9s. Epicentre 29°·2N. 131°·3E. (as on Oct. 26d.). X.

$A = -·5761$, $B = +·6558$, $C = +·4879$; $\delta = +1$;
$D = +·751$, $E = +·660$; $G = -·322$, $H = +·367$, $K = -·873$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hukuoka		4·4	350	e 0 58	− 5	2 8	S*	—	2·6
Hukuoka B		4·4	350	e 1 0	− 3	2 5	S*	—	—
Sumoto		6·0	30	1 23	− 2	3 14	S_g	—	3·4
Kobe	E.	6·4	29	e 1 52	P*	e 3 8	S*	—	3·7
	N. or Z.	6·4	29	e 1 40	P*	e 3 2	S*	—	3·8
Toyooka	E.	7·0	25	1 41	+ 2	e 3 36	S_g	—	4·1
	N.	7·0	25	1 43	+ 4	3 34	S_g	—	4·0
	Z.	7·0	25	e 1 36	− 3	3 39	S_g	—	—
Nagoya		7·6	37	e 1 50	+ 2	4 21	S_g	—	—
Zi-ka-wei	Z.	8·8	285	e 2 55	+50	—	—	—	5·0
Keizyo		9·1	338	e 3 59	S	(e 3 59)	+ 8	—	—
Zinsen		9·2	335	e 2 8	− 2	e 4 28	S*	—	—
Nanking		11·1	288	e 2 41	+ 5	e 5 24	S*	e 6·4	7·8
Vladivostok		13·9	2	e 3 33	+19	—	—	6·4	8·6
Chiufeng		16·5	315	e 3 50	+ 2	e 6 52	+ 2	—	11·3
Sverdlovsk		55·5	322	e 9 42	+10	e 21 58	SSS	28·8	36·0

Additional readings :—
Keizyo eSEN = +4m.33s.
Long waves were also recorded at Hong Kong, Kodaikanal, Tashkent, Andijan, Baku, Tiflis, Copenhagen, Moscow, Pulkovo, and Phu-Lien.

Nov. 9d. Readings also at 1h. (Ksara), 2h. (near Oak Ridge), 3h. (Arapuni), 4h. (near Oak Ridge), 7h. (Kodaikanal), 8h. (Mount Wilson, Pasadena, Sverdlovsk, Tashkent, Colombo, and Kodaikanal), 9h. (Mount Wilson, Pasadena, Sverdlovsk, Baku, Tashkent, and Ksara), 10h. (near Tiflis), 12h. (near Hastings, Tuai, and Wellington), 14h. (Bombay, Calcutta, Colombo, Hyderabad, Ksara, Tiflis, Kodaikanal, Baku, Sverdlovsk, Tashkent, Mount Wilson, Pasadena, and Tinemaha), 15h. (near Reykjavik), 16h. (near Reykjavik and near Santiago), 20h. (Kodaikanal), 22h. (Tiflis, near Reykjavik, and near Wellington), 23h. (near Tiflis).

Nov. 10d. Readings at 0h. (Tiflis), 1h. (Kodaikanal), 2h. (near Tiflis), 3h. (Colombo, Kodaikanal (2), Tashkent, Mount Wilson, Pasadena, and Tinemaha), 4h. (Riverview, Vermont, Andijan, near Samarkand, and near Tiflis), 5h, (Kodaikanal and Riverview), 6h. (Kodaikanal and near Nagoya), 9h. (Medan), 11h. (Kodaikanal, near Medan, and near Hukuoka B), 12h. (Chiufeng, Kodaikanal, Vladivostok, Tiflis, Sverdlovsk, Ksara, Mount Wilson, Pasadena, and Tinemaha), 13h. (Nanking, Bombay, Calcutta, Baku, Pulkovo, Tashkent, Tiflis, Copenhagen, De Bilt, Paris, Strasbourg, Stuttgart, Mount Wilson (2), Pasadena (2), Grozny, near Erevan, near La Paz, and near Wellington), 15h. (Baku, Tashkent, Sverdlovsk, Vladivostok, Nagoya, and near Mizusawa), 16h. (Mount Wilson, Pasadena, Vladivostok, Sverdlovsk, Tashkent, Kodaikanal, and Neuchatel), 17h. (Haiwee, Mount Wilson, Pasadena, Tinemaha, Vladivostok, Sverdlovsk, Moscow, Tashkent (2), Ksara (2), Tiflis, Pulkovo (2), Baku (2), Copenhagen (2), Paris, Bombay (2), Colombo, and Kodaikanal), 18h. (Hyderabad, Calcutta, Mount Wilson, Pasadena, and Tinemaha), 19h. (near San Javier), 20h. (Kodaikanal, Sverdlovsk, Tashkent, Tiflis, Mount Wilson (2), and Pasadena (2)), 21h. (Sverdlovsk. Tiflis, Mount Wilson, and Pasadena), 22h. (Tashkent), 23h. (Kodaikanal, Hyderabad, Sverdlovsk, Tashkent, Mount Wilson, and Pasadena).

Nov. 11d. 0h. 41m. 57s. Epicentre 41°·0N. 155°·0E. N.3.

$A = -\cdot6840$, $B = +\cdot3190$, $C = +\cdot6561$; $\delta = +8$;
$D = +\cdot423$, $E = +\cdot906$; $G = -\cdot595$, $H = +\cdot277$, $K = -\cdot755$.

Very rough.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Vladivostok		17·2	285	e 3 55	− 2	—	—	9·4	13·0
Sverdlovsk		58·8	320	9 54	− 2	e 17 57	− 3	26·0	36·6
Tashkent		61·6	302	e 10 4	−12	e 18 34	− 3	e 31·0	37·4
Tinemaha	E.	64·5	63	e 10 36	+ 1	—	—	—	—
Pasadena	Z.	66·2	65	i 10 47	0	—	—	—	—
Mount Wilson	Z.	66·3	65	i 10 48	+ 1	—	—	—	—
Baku		74·0	311	—	—	e 29 29	SSS	39·0	45·2
Grozny		74·4	315	—	—	e 21 40	+27	—	—
Tiflis		76·0	314	e 11 45	− 1	e 21 5	−27	38·4	48·8
Jena		82·7	338	e 12 11	−11	—	—	—	—
Ksara		86·6	313	i 12 45	+ 4	—	—	—	54·4
Neuchatel		87·7	339	e 12 43	− 3	—	—	—	—

Additional readings :—
Tiflis eSSSE = +30m.33s.
Ksara ePS = +25m.54s., ePPS = +26m.39s.
Long waves were also recorded at Hong Kong, Chiufeng, Nanking, Bombay, Scoresby Sund, Moscow, Pulkovo, and at other European stations.

Nov. 11d. 17h. 11m. 22s. Epicentre 39°·0N. 75°·0E. (as on 1929 June 18d.). X.

$A = +\cdot2011$, $B = +\cdot7507$, $C = +\cdot6293$; $\delta = +1$;
$D = +\cdot966$, $E = -\cdot259$; $G = +\cdot163$, $H = +\cdot608$, $K = -\cdot777$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan		2·4	301	e 0 41	P_g	i 1 29	S_g	—	1·7
Frunse		3·9	355	e 0 56	0	i 1 44	+ 4	—	—
Almata		4·5	18	i 1 7	+ 3	i 2 16	S*	—	—
Tashkent		5·0	300	i 1 10	− 1	i 1 59	− 9	2·0	2·9
Tchimkent		5·2	310	e 1 13	− 1	—	—	—	—
Samarkand		6·2	278	e 1 27	− 1	e 2 49	S_g	—	—
Dehra Dun		9·0	163	2 18	+11	3 38	−11	4·6	5·6
Semipalatinsk		12·0	16	e 2 44	− 4	e 5 31	+28	e 7·7	—
Baku		19·3	282	i 4 21	− 1	7 57	+ 5	11·1	12·7
Calcutta	N.	20·0	142	e 4 16	−14	1 7 50	−16	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Bombay		20·2	186	—	—	e 7 38?	−32	—	12·5
Sverdlovsk		20·2	337	e 4 37	+ 5	i 8 29	SS	10·7	11·1
Hyderabad		21·7	171	8 35	S	(8 35)	− 5	11·9	12·9
Grozny		22·3	292	i 4 57	+ 3	i 9 11	+19	17·6	—
Tiflis		23·1	286	5 0a	− 2	e 9 12	+ 5	14·6	19·5
Erevan		23·4	283	e 5 12	+ 7	e 9 41	+29	—	—
Piatigorsk		24·3	294	e 5 12	− 1	e 9 37	+ 9	—	—
Sotchi		26·7	293	e 5 38	+ 3	—	—	—	—
Kodaikanal	E.	28·8	175	i 10 38	S	(i 10 38)	− 7	13·8	15·3
Moscow		29·8	317	e 6 2	− 1	e 11 4	+ 3	e 15·2	18·5
Theodosia		29·8	294	e 5 48	−15	—	—	—	—
Simferopol		30·6	296	e 6 10	0	—	—	e 14·4	—
Yalta		30·6	295	e 6 10	0	—	—	e 16·2	—
Chiufeng		31·4	74	e 6 11	− 6	e 9 48	?	—	20·7
Ksara		31·7	274	i 6 20a	0	e 11 42	+11	—	—
Colombo		32·4	172	11 29	S	(11 29)	−12	(16·4)	24·3
Vladivostok		42·3	66	—	—	e 17 40	SS	23·4	31·4
Copenhagen		43·8	315	—	—	14 38	+ 5	23·6	—

Additional readings :—
Andijan $iP_g = +47s.$, PP = +49s., i = +1m.4s., PP = +1m.11s.
Frunse $iP_g = +1m.8s.$, iPP = +1m.14s., $iS_g = +1m.58s.$, iPS = +1m.39s.
Tchimkent iPP = +1m.38s.
Samarkand e = +2m.2s. and +2m.31s.
Hyderabad S = +11m.14s.
Tiflis eZ = +9m.20s., SSSE = +10m.46s., $eP_cSE = +11m.52s.$
Kodaikanal iSE? = +13m.4s.
Theodosia e = +6m.48s.
Colombo gives S and L as P and S respectively.
Long waves were also recorded at Hong Kong, Zi-ka-wei, Nanking, Scoresby Sund, and several European stations.

Nov. 11d. Readings also at 0h. (Tiflis, Frunse, Grozny, Sverdlovsk, near Samarkand, Tashkent, and Tchimkent), 2h. (Fresno, near Berkeley, Branner, Lick, San Francisco, near Grozny, and Tiflis), 3h. (Grozny, Tiflis, and Philadelphia), 4h. (Colombo, Kodaikanal, Bombay, Ksara, and Philadelphia), 8h. (Arapuni and near Wellington (2)), 9h. (near Mizusawa and Nagoya), 10h. (Adelaide, Melbourne, Sydney, Perth, Christchurch, Wellington, Ksara, Molnt Wilson, and Pasadena), 11h. (Mizusawa (2)), 12h. (Fresno, Christchurch, and Alicante), 15h. (Nanking, Graz, and near Zagreb), 17h. (Frunse (2), near Almata (2), and Andijan (2)), 18h. (Frunse, near Almata and Andijan), 21h. (La Plata, near Santiago, and San Javier), 22h. (Mount Wilson and Pasadena).

Nov. 12d. 2h. 15m. 39s. Epicentre 16°·5N. 147°·0E. (as on 1931 Nov. 3d.). R.2.

$A = -·8041$, $B = +·5222$, $C = +·2840$; $\delta = -7$;
$D = +·545$, $E = +·839$; $G = -·238$, $H = +·155$, $K = -·959$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		20·7	337	e 4 38	+ 1	8 11	− 9	—	—
Sumoto		20·9	331	e 4 45	+ 6	8 13	−11	—	—
Kobe	E.	21·0	331	e 4 30	−10	e 8 12	−14	e 11·8	—
	N.	21·0	331	e 4 29	−11	e 8 18	− 8	e 11·9	—
	Z.	21·0	331	e 4 20	−20	e 8 19	− 7	e 10·6	—
Hukuoka B		22·7	322	e 5 0	+ 2	e 9 31	SS	—	—
Mizusawa		23·2	348	i 5 0	− 3	i 9 4	− 4	—	—
Manila		25·1	269	i 5 22	+ 1	10 16	+33	—	—
Keizyo		27·5	324	e 5 47	+ 4	e 10 24	0	e 13·6	—
Zi-ka-wei	Z.	27·5	308	e 5 45	+ 2	—	—	13·7	16·8
Vladivostok		29·6	337	e 7 17	?	e 10 43	−15	12·8	18·2
Nanking		29·9	306	e 6 3	− 1	10 59	− 4	e 14·3	15·7
Hong Kong		31·4	287	6 26	+ 9	11 25	− 1	—	16·7
Chiufeng		35·7	318	e 6 55	0	12 14	−18	e 14·0	—
Phu-Lien		38·4	284	e 7 16	− 2	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Batavia		45·8	245	i 8 10	− 9	14 54	− 8	—	—
Medan		49·1	262	9 45	+61	17 50	?	—	—
Riverview		50·5	176	—	—	e 16 21	+13	e 24·8	29·5
Sydney		50·5	176	—	—	e 15 27	−41	23·8	25·4
Adelaide		52·1	189	i 9 9	+ 2	i 16 26	− 4	24·2	33·2
Melbourne		54·4	183	e 8 49	−35	i 17 0	− 1	—	29·8
Calcutta	N.	55·3	287	—	—	i 17 10	− 3	—	—
Semipalatinsk		62·6	319	e 11 15	+53	—	—	—	—
Agra	E.	64·2	293	—	—	i 18 54	−16	—	—
Christchurch		64·5	160	26 48	?	31 31	?	34·7	—
College		64·7	25	—	—	e 19 28	+12	e 30·6	—
Frunse		66·1	311	e 11 17	+31	e 19 21	−13	—	—
Kodaikanal	E.	67·6	276	—	—	e 19 21?	−31	—	—
Tashkent		70·1	310	11 5	− 6	i 20 7	−15	e 29·4	36·6
Samarkand		72·0	309	e 11 21	− 2	e 21 18	+33	—	—
Sverdlovsk		74·2	326	i 11 37	+ 1	i 21 1	−10	31·4	43·4
Berkeley		80·5	54	e 12 10	0	—	—	—	—
Branner		80·6	53	e 12 9	− 2	—	—	—	—
Lick		81·1	54	e 12 13	− 1	—	—	—	—
Fresno	N.	82·7	55	e 12 23	+ 1	—	—	—	—
Tinemaha		83·8	52	e 12 27	0	e 22 45	−10	—	—
Haiwee	N.	84·3	54	e 12 30	0	e 22 50	[− 4]	—	—
Baku		84·6	311	—	—	e 22 41	[−15]	40·8	53·2
Pasadena		84·7	56	i 12 31a	− 1	e 22 48	[− 9]	e 42·0	—
Mount Wilson	Z.	84·8	56	i 12 32	0	e 22 47	[−11]	—	—
Riverside		85·4	56	e 12 34	− 1	—	—	—	—
La Jolla		85·8	58	i 12 38	+ 1	—	—	—	—
Grozny		86·6	315	i 12 26	−15	i 23 6	[− 5]	—	—
Moscow		86·8	328	12 38	− 4	e 22 55	[−17]	38·8	51·4
Tiflis		87·8	313	e 12 41	− 6	i 23 15	[− 4]	e 37·0	47·5
Pulkovo		88·4	334	e 12 41	− 9	e 22 56	[−27]	41·4	50·4
Erevan		88·6	312	e 12 45	− 6	—	—	—	—
Sotchi		90·6	317	e 12 55	− 5	e 23 37	[+ 1]	—	—
Tucson		91·1	57	e 13 18	+15	e 23 58	− 8	e 40·1	—
Scoresby Sund		92·7	357	—	—	23 33	[−15]	44·4	—
Theodosia		92·8	319	e 13 16	+ 6	e 23 29	[−20]	—	—
Simferopol		93·6	319	e 13 10	− 4	e 23 36	[−17]	—	—
Yalta		93·8	319	e 13 12	− 3	—	—	—	—
Ksara		97·4	309	e 13 29	− 3	—	—	—	—
Ivigtut		101·4	8	e 17 33	PP	—	—	50·4	—
Florissant		103·0	43	—	—	e 24 27	[−13]	e 53·2	—
Ottawa		107·0	30	—	—	e 24 45	[−14]	51·4	—
San Juan		132·3	45	e 16 21	+ 1	—	—	—	—
Huancayo		138·8	90	e 19 25	[+ 5]	23 2	?	—	—
La Paz		146·3	96	i 19 40a	[+ 4]	—	—	68·4	75·8
Rio de Janeiro		168·5	125	—	—	e 32 21?	?	84·4	—

Additional readings :—
Sumoto ePEN = +4m.50s.
Vladivostok e = +11m.49s.
Nanking eSS = +12m.44s., eE = +13m.18s.
Adelaide i = +9m.46s.
Melbourne i = +17m.28s. and +21m.21s.
Baku e = +30m.50s.
Pasadena iPKP,PKPZ = +38m.42s., eZ = +42m.3s.
Mount Wilson ePKP,PKPZ = +37m.49s.
Tiflis SKSE = +23m.1s., SSN = +29m.3s.
Tucson eSKS = +23m.33s., ePS = +25m.9s., e = +37m.3s.
Scoresby Sund +30m.27s.
Ksara ePPP = +19m.51s., ePPS = +27m.15s., eSS = +36m.18s.
Florissant i = +24m.31s., eN = +32m.45s.
Ottawa e = +27m.51s.
San Juan ePP = +22m.21s.
Huancayo ePP = +22m.28s., ePKS = +22m.58s., e = +23m.21s., ePPP = +25m.11s.
La Paz ipPKPZ = +21m.0s., PPZ = +24m.12s.
Long waves were also recorded at Hyderabad, Wellington, Bozeman, East Machias, Chicago, Madison, and some European stations.

Nov. 12d. 4h. 26m. 9s. Epicentre 8°·0N. 103°·0W. (as on 1927 Nov. 19d.). X.

$A = -·2228$, $B = -·9649$, $C = +·1392$; $\delta = +5$;
$D = -·974$, $E = +·225$; $G = -·031$, $H = -·136$, $K = -·990$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manzanillo	N.	11·1	353	—	—	4 34?	− 7	—	—
Tacubaya	N.	12·0	17	2 48?	0	—	—	—	—
Guadalajara	N.	12·7	358	2 43	−15	—	—	—	—
Tucson		25·3	344	e 5 28	+ 5	e 9 51	+ 5	e 12·3	—
La Jolla		28·1	334	e 5 42	− 6	—	—	—	—
Little Rock	N.	28·5	19	e 5 51	− 1	—	—	—	—
Riverside	N.	29·2	335	e 6 2	+ 4	—	—	—	—
Pasadena		29·6	335	e 5 58	− 3	—	—	e 12·4	—
Mount Wilson	Z.	29·7	335	i 6 0	− 2	—	—	—	—
Tinemaha		32·2	337	e 6 24	0	—	—	—	—
St. Louis	N.	32·7	20	i 6 27	− 2	—	—	e 14·6	—
Florissant		32·8	19	e 6 30	0	e 10 52	−56	e 16·8	
Huancayo		34·0	126	e 6 47	+ 7	e 12 16	+10	e 14·2	—
Chicago		36·4	20	e 8 13	PP	e 12 39	− 3	e 14·4	—
San Juan		37·3	70	e 7 3	− 6	—	—	16·5	—
Bozeman		38·3	351	—	—	(e 13 9)	− 2	e 13·2	—
La Paz		42·3	128	e 7 56	+ 5	i 13 28	−42	16·0	26·0
Ottawa		44·2	28	—	—	e 14 39	0	21·8	—
Rio de Janeiro	E.	66·1	119	e 19 51	S	(e 19 51)	+17	e 33·4	—
Scoresby Sund		79·5	20	—	—	22 16	+ 6	39·8	—
Pulkovo		102·8	22	e 15 16	?	—	—	51·8	57·0
Moscow		108·4	21	—	—	e 31 54	?	—	—
Tiflis		122·2	28	—	—	e 32 19	?	e 62·4	81·8
Ksara		122·8	41	e 19 45	PP	—	—	61·8	70·4
Baku		125·6	25	—	—	e 32 48	?	58·8	70·4

Additional readings :—
Tucson eSS = +10m.48s.
Little Rock eN = +6m.2s.
St. Louis iN = +7m.22s.
Florissant eE = +6m.39s., i = +7m.29s., eN = +11m.37s., iN = +11m.50s., iE = +12m.50s.
Huancayo e = +7m.15s. and +8m.7s., eS = +11m.57s.
San Juan e = +8m.27s., +8m.55s., and +9m.53s.
Ottawa eE = +18m.3s.
Scoresby Sund +27m.21s.
Ksara e = +30m.40s. and +35m.49s.
Baku e = +42m.16s. and +49m.3s.
Long waves were also recorded at Berkeley, Honolulu, Christchurch, Wellington, Vladivostok, Ukiah, Madison, Denver, Oak Ridge, Tashkent, Sverdlovsk, Copenhagen, De Bilt, Paris, Strasbourg, Stuttgart, and Ivigtut.

Nov. 12d. 6h. 28m. 0s. Epicentre 34°·0N. 133°·9E. (as on 1936 Oct. 30d.). X.

$A = -·5749$, $B = +·5974$, $C = +·5592$; $\delta = +10$;
$D = +·721$, $E = +·693$; $G = -·388$, $H = +·403$, $K = -·829$.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Sumoto	0·9	67	i 0 20	+ 7	0 38	+15	0·7
Kobe	1·2	57	i 0 24	+ 7	0 43	+12	0·8
Toyooka	1·7	26	0 26k	P*	0 47	+ 3	0·9
Nagoya	2·7	67	e 0 50	P_g	1 37	S_g	—
Hukuoka	2·9	262	0 41	0	1 15	+ 1	—
Hukuoka B	2·9	262	● 0 39	− 2	1 17	+ 3	—

Nov. 12d. 8h. 28m. 21s. Epicentre 13°·3N. 145°·2E. N.2.

$A = -\cdot7991$, $B = +\cdot5554$, $C = +\cdot2300$; $\delta = -7$;
$D = +\cdot571$, $E = +\cdot821$; $G = -\cdot189$, $H = +\cdot131$, $K = -\cdot973$.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Palau		12·1	242	3 53	+63	6 12	S*	—	—
Naha		20·9	309	4 39	0	7 43	−41	—	—
Siomisaki		21·9	338	4 50	0	8 53	+ 9	—	—
Mera		22·2	349	4 57	+ 4	—	—	—	—
Misima		22·5	346	4 57	+ 1	—	—	—	—
Miyazaki		22·5	327	4 58a	+ 2	9 2	+ 7	—	—
Simidu		22·5	332	4 53	− 3	9 1	+ 6	—	—
Yokohama		22·7	348	5 15	+17	9 16	+17	—	—
Koti		22·8	334	5 0	+ 1	9 9	+ 8	—	—
Wakayama		22·8	339	4 59	0	9 8	+ 7	—	—
Tokyo		22·9	349	5 6	+ 6	—	—	—	—
Hunatu		23·0	348	4 56	− 5	—	—	—	—
Kameyama		23·0	340	5 2	+ 1	—	—	—	—
Sumoto		23·0	339	5 1a	0	9 12	+ 7	—	—
Nagoya		23·1	344	e 5 3	+ 1	e 9 14	+ 7	—	—
Osaka		23·1	340	4 46	−16	9 4	− 3	—	—
Kobe	E.	23·2	340	e 5 5	+ 2	8 56	−12	—	12·9
	N.	23·2	340	e 5 4	+ 1	9 1	− 7	—	15·0
	Z.	23·2	340	e 5 1	− 2	9 3	− 5	—	16·8
Gihu		23·4	344	5 4	− 1	9 18	+ 6	—	—
Hikone		23·4	343	5 7	+ 2	—	—	—	—
Kakioka		23·4	349	5 9	+ 4	9 17	+ 5	—	—
Matuyama		23·4	334	5 3	− 2	9 20	+ 8	—	—
Tukubasan		23·4	349	5 7	+ 2	9 25	+13	—	—
Kumagaya		23·5	348	5 3	− 2	9 35	+21	—	—
Manila		23·5	276	i 5 9k	+ 4	9 28	+14	—	—
Mito		23·5	350	5 19	+14	9 16	+ 2	—	—
Kumamoto		23·6	328	5 7a	+ 1	—	—	—	—
Maebasi		23·8	348	5 11	+ 3	—	—	—	—
Oiwake		23·8	347	5 11	+ 3	9 2	−17	—	—
Unzendake		23·8	327	5 8	0	—	—	—	—
Nagasaki		24·0	327	5 11	+ 1	—	—	—	—
Nagano		24·2	346	5 16	+ 4	9 41	+14	—	—
Hukuoka B		24·3	329	5 13	0	9 46	+18	—	—
Karenko		24·7	299	4 50	−27	—	—	—	—
Taito		24·7	297	5 54	PPPP	—	—	—	—
Kosyun		24·8	295	5 19	+ 1	—	—	—	—
Arisan		25·3	298	5 27	+ 4	—	—	—	—
Sendai		25·3	353	5 23	0	10 8	+22	—	—
Keizyo		29·2	329	e 6 6	+ 8	e 10 48	− 3	e 13·1	—
Zinsen		29·3	328	e 6 39?	PP	—	—	—	—
Nanking		30·6	311	e 7 7	PP	i 11 23	+ 9	e 14·3	19·4
Vladivostok		32·0	341	e 6 21	− 2	e 11 32	− 3	14·1	19·0
Chiufeng		37·0	322	i 7 7a	+ 1	i 12 47	− 4	15·9	21·5
Phu-Lien		37·5	287	e 8 39?	PP	e 12 39?	−20	—	—
Batavia		42·8	246	i 7 56	+ 1	—	—	—	—
Medan		46·9	263	e 8 27	− 1	—	—	—	—
Adelaide		48·6	187	i 12 2	?	e 15 40	− 1	—	30·3
Melbourne		51·1	180	—	—	i 16 19	+ 3	24·9	29·1
Calcutta	N.	54·6	288	e 12 24	PPP	—	—	—	—
Agra	E.	63·9	294	e 10 36	+ 5	—	—	—	—
Colombo		64·5	271	11 2	+27	19 38	+24	32·6	—
Tashkent		70·7	310	e 11 41	+26	20 44	+14	e 32·1	38·0
Sverdlovsk		75·9	326	11 52	+ 7	21 22	− 8	32·1	42·9
Berkeley		83·8	52	e 12 27	0	—	—	—	—
Branner		84·0	53	e 12 29	+ 1	—	—	—	—
Baku		85·4	311	e 12 36	+ 1	e 23 6	[+ 4]	41·6	47·0
Tinemaha		87·1	53	e 12 44	0	—	—	—	—
Haiwee	N.	87·6	53	e 12 51	+ 5	e 23 27	− 6	—	—
Pasadena		87·9	56	i 12 48	+ 1	e 23 31	− 5	e 39·2	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Mount Wilson	88·0	56	i 12 46	− 2	c 23 32	− 5	—	—
Moscow	88·6	327	e 16 6	PP	24 39	PS	40·6	51·0
Riverside	88·6	56	e 12 51	0	c 23 37	− 6	—	—
Tiflis	88·7	312	e 12 59	+ 8	c 23 19	[− 5]	42·6	58·0
La Jolla	89·0	57	e 12 53	0	—	—	—	—
Pulkovo	90·4	333	c 13 15	+16	c 24 27	+27	43·6	53·3
Scoresby Sund	95·8	356	—	—	31 39?	SS	49·6	—
Ksara	98·0	307	e 17 7	PP	26 31	PS	—	—
Huancayo	140·5	92	22 53	PKS	c 41 9	SS	c 64·7	—
La Paz	147·7	99	e 19 42a	[+ 4]	26 28	[− 9]	69·3	80·1

Additional readings :—
Nanking sS = +12m.56s.
Chiufeng SSE = +15m.12s., SSN = +15m.15s., iE = +15m.23s., iN = +15m.27s.
Batavia iPEN = +7m.57s.
Adelaide i = +15m.52s., e = +18m.31s. = S_cS −4s. and +19m.46s.
Pasadena eE? = +19m.49s., eZ = +23m.33s.
Tiflis eE = +15m.25s., ePPPE = +18m.21s., ePSN = +24m.1s., eSSN = +29m.23s.
Pulkovo e = +27m.50s., SS = +29m.57s.
Ksara SS = +32m.33s.
Huancayo e = +23m.12s. = PKS +2s.
La Paz iPKPZ = +19m.48s., ipPKP = +21m.19s., sPZ = +22m.24s., SKKS = +30m.27s.
Long waves were also recorded at Hong Kong, Christchurch, Wellington, Riverview, Honolulu, Hyderabad, Tucson, Florissant, and other European stations.

Nov. 12d. 20h. 4m. 48s. Epicentre 45°·5N. 148°·5E. N.1.

A = −·5976, B = +·3662, C = +·7133 ; δ = +3 ;
D = +·522, E = +·853 ; G = −·608, H = +·373, K = −·701.

A Correction for depth of focus of 0·015 has been applied.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Nemuro	+0·2	3·0	224	0 44	− 2	1 16	− 6	—	—
Kusiro	+0·2	3·9	231	0 34	−24	1 16	−29	—	—
Obihiro	0·0	4·6	238	1 2	− 4	1 54	− 4	—	—
Asahigawa	0·0	4·7	251	1 19a	+12	2 13	+13	—	—
Haboro	0·0	5·0	260	0 57	−14	1 57	−11	—	—
Urakawa	0·0	5·3	233	0 51	−24	1 48	−27	—	—
Sapporo	0·0	5·7	247	1 25k	+ 4	2 4	−21	—	—
Muroran	0·0	6·3	243	1 31a	+ 1	2 37	− 4	—	—
Hakodate	0·0	6·7	240	1 42	+ 7	2 52	+ 1	—	—
Hatinohe	−0·1	7·1	229	0 56a	−43	2 10	−49	—	—
Aomori	−0·1	7·3	233	1 42	0	2 56	− 8	—	—
Miyako	−0·1	7·6	221	1 40	− 6	3 4	− 7	—	—
Morioka	−0·1	7·9	226	1 48k	− 3	3 10	− 9	—	—
Mizusawa	−0·1	8·4	243	1 55	− 3	i 3 21	−10	—	—
Akita	−0·1	8·5	230	2 0	+ 1	3 26	− 8	—	—
Isinomaki	−0·2	8·9	220	2 1	− 2	3 32	− 9	—	—
Sendai	−0·2	9·2	221	2 7a	0	3 41	− 8	—	—
Yamagata	−0·2	9·4	223	2 9	− 1	3 32	−22	—	—
Hukusima	−0·2	9·8	220	2 12	− 4	3 56	− 7	—	—
Aidu	−0·2	10·1	221	2 39a	+20	4 26	+15	—	—
Onahama	−0·2	10·3	216	2 16	− 6	3 57	−19	—	—
Mito	−0·2	10·9	216	2 30	− 1	4 18	−13	—	—
Utunomiya	−0·2	11·0	219	2 31	− 1	4 28	− 5	—	—
Kakioka	−0·2	11·2	217	2 31k	− 4	4 27	−11	—	—
Tukubasan	−0·2	11·2	218	2 31k	− 4	4 25	−13	—	—
Tyosi	−0·2	11·3	213	2 34	− 2	4 29	−12	—	—
Takada	−0·2	11·4	226	2 36	− 1	4 38	− 5	—	—
Maebasi	−0·2	11·5	221	2 36	− 3	4 39	− 6	—	—
Kumagaya	−0·2	11·6	219	2 37	− 3	4 41	− 7	—	—
Nagano	−0·2	11·7	225	2 41	− 1	4 46	− 4	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Oiwake		−0·2	11·8	223	2 44	+ 1	5 9	+16	—	—
Tokyo		−0·2	11·8	217	2 41	− 2	4 44	− 9	—	—
Wazima		−0·3	11·9	231	2 43	0	4 46	− 7	—	—
Vladivostok		−0·3	12·1	264	2 50	+ 4	i 5 2	+ 4	5·7	11·9
Yokohama		−0·3	12·1	216	2 48	+ 2	4 54	− 4	—	—
Toyama		−0·3	12·3	228	2 47	− 1	4 57	− 6	—	—
Hunatu		−0·3	12·4	220	2 51	+ 1	4 58	− 7	—	—
Kohu		−0·3	12·4	221	2 51	+ 1	5 1	− 4	—	—
Mera		−0·3	12·5	215	2 49	− 2	5 3	− 5	—	—
Misima		−0·3	12·6	218	2 53	+ 1	5 6	− 4	—	—
Numadu		−0·3	12·7	219	3 0	+ 6	—	—	—	—
Iida		−0·3	12·8	223	2 57	+ 2	—	—	—	—
Gihu		−0·3	13·4	225	3 3k	0	5 41	+12	—	—
Hamamatu		−0·3	13·5	221	3 3	− 2	5 39	+ 7	—	—
Nagoya		−0·3	13·5	225	e 3 4	− 1	5 47	+15	—	—
Hikone		−0·4	13·8	226	3 11	+ 4	—	—	—	—
Kameyama		−0·5	14·1	225	3 10	0	5 54	+13	—	—
Kyoto		−0·5	14·3	227	3 14k	+ 1	—	—	—	—
Toyooka		−0·5	14·4	231	3 15k	+ 1	5 49	0	—	—
Osaka		−0·5	14·7	227	3 20	+ 2	6 2	+ 6	—	—
Osaka B		−0·5	14·7	227	3 21	+ 3	6 14	+18	—	—
Kobe		−0·5	14·8	228	i 3 21	+ 2	6 10	+12	—	6·2
Sumoto		−0·5	15·2	227	3 23k	− 2	6 18	+10	—	—
Wakayama		−0·5	15·2	227	3 23	− 2	6 14	+ 6	—	—
Siomisaki		−0·5	15·5	224	3 32k	+ 4	6 26	+11	—	—
Hamada		−0·5	16·4	235	3 42	+ 2	6 18	−18	—	—
Hirosima		−0·5	16·5	233	3 45	+ 4	6 44	+ 6	—	—
Koti		−0·5	16·5	229	3 41	0	6 46	+ 8	—	—
Matuyama		−0·6	16·7	231	3 45k	+ 2	6 48	+ 7	—	—
Keizyo		−0·6	17·9	252	e 4 0	+ 2	e 7 13	+ 4	—	—
Heizyo		−0·6	17·9	257	e 3 58	0	i 7 16	+ 7	—	—
Husan		−0·6	18·1	242	4 2	+ 2	7 15	+ 2	—	—
Zinsen		−0·6	18·2	253	e 4 0	− 2	i 7 20	+ 5	—	—
Hukuoka		−0·6	18·3	236	4 1	− 2	7 19	+ 2	—	—
Hukuoka B		−0·6	18·3	236	4 3	0	7 19	+ 2	—	—
Kumamoto		−0·6	18·7	233	4 9	+ 1	7 33	+ 6	—	—
Miyazaki		−0·6	19·0	230	4 12k	+ 1	7 38	+ 5	—	—
Unzendake		−0·6	19·0	235	4 25	+14	7 52	+19	—	—
Titizima		−0·6	19·1	198	4 11	− 2	—	—	—	—
Nagasaki		−0·6	19·2	235	4 13	− 1	7 49	+11	—	—
Kagosima		−0·6	19·7	231	4 21	+ 1	—	—	—	—
Tomie		−0·6	19·9	237	4 21	− 1	7 58	+ 6	—	—
Nake		−0·7	22·8	228	4 45	− 7	—	—	—	—
Chiufeng		−0·8	24·2	270	i 5 5a	0	9 13	+ 1	—	—
Naha		−0·8	25·5	229	5 17	0	9 31	− 5	—	—
Nanking		−0·8	26·6	251	e 5 26	− 1	i 9 48	− 7	—	—
Taito		−1·0	31·8	235	6 56	+44	—	—	—	—
Hong Kong		−1·2	36·3	242	12 18	S	(12 18)	− 5	—	22·8
College		−1·3	38·9	36	7 41	+29	e 13 27	+27	—	—
Phu-Lien		−1·4	43·0	249	e 7 35	−10	e 13 45	−15	—	—
Semipalatinsk		−1·4	44·3	302	i 7 55	− 1	—	—	—	—
Almata		−1·5	48·9	295	8 40	+ 8	—	—	—	—
Frunse		−1·5	51·1	295	e 8 49	+ 1	15 58	+ 3	—	—
Sverdlovsk		−1·5	52·3	317	i 9 7	+10	i 16 20	+ 8	21·3	31·9
Calcutta		−1·6	53·5	266	—	—	i 16 29	+ 2	—	18·8
Andijan		−1·6	53·6	294	e 9 15	+ 9	—	—	—	—
Tchimkent		−1·6	53·9	297	9 12	+ 3	16 35	+ 2	—	—
Agra	E.	−1·8	57·7	277	e 9 34	− 1	i 17 19	− 2	—	—
Samarkand		−1·8	57·7	296	9 39	+ 4	17 23	+ 2	—	—
Moscow		−1·9	63·3	324	e 10 18	+ 4	e 18 37	+ 3	22·7	33·2
Pulkovo		−1·9	63·3	331	i 10 16	+ 2	e 18 33	− 1	25·2	31·6
San Francisco	N.	−1·9	63·5	62	e 10 18	+ 2	—	—	—	—
Berkeley		−1·9	63·6	62	e 10 17	+ 1	—	—	—	—
Scoresby Sund		−1·9	63·8	356	10 19	+ 1	18 51	+10	—	—
Branner		−1·9	63·9	62	e 10 21	+ 3	—	—	—	—
Fresno	N.	−1·9	65·8	62	e 10 34	+ 3	—	—	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Tinemaha		−1·9	66·5	60	i 10 39	+ 3	e 19 19	+ 4	—	—
Bombay		−1·9	66·7	273	—	—	i 19 13	− 4	—	—
Haiwee	N.	−1·9	67·3	60	i 10 43	+ 2	i 19 30	+ 5	—	—
Baku		−1·9	67·5	306	i 10 45	+ 3	i 19 33	+ 6	e 36·7	41·2
Grozny		−2·0	67·9	310	i 10 46	+ 1	i 19 38	+ 7	—	—
Mount Wilson		−2·0	68·5	63	i 10 50a	+ 1	—	—	—	—
Pasadena		−2·0	68·5	63	i 10 49a	0	i 19 42	+ 3	—	—
Piatigorsk		−2·0	68·8	312	i 10 26	−25	19 22	−20	—	—
Riverside		−2·0	69·1	63	i 10 52	0	—	—	—	—
Tiflis		−2·0	69·5	309	i 10 56a	+ 1	i 19 54	+ 3	e 34·2	47·9
La Jolla		−2·0	69·9	63	i 10 58	0	—	—	—	—
Erevan		−2·0	70·7	308	i 11 8	+ 5	20 15	+10	—	—
Sotchi		−2·0	70·8	313	i 11 4	+ 1	e 20 8	+ 1	—	—
Theodosia		−2·0	71·9	317	i 11 11	+ 1	20 22	+ 2	—	—
Copenhagen		−2·0	72·3	336	i 11 11	− 2	20 22	− 3	37·2	—
Simferopol		−2·0	72·6	318	i 11 13	− 1	—	—	—	—
Yalta		−2·0	72·9	317	i 11 17	+ 1	e 20 32	0	—	—
Sebastopol		−2·0	73·1	318	11 18	+ 1	—	—	—	—
Tucson		−2·0	74·3	59	e 11 25	0	e 20 46	− 2	e 32·0	—
Hamburg		−2·0	74·8	337	i 11 27	− 1	—	—	e 36·2	—
Prague	z.	−2·0	76·5	332	i 11 22a	−15	—	—	—	—
Jena		−2·0	76·6	333	i 11 36	− 1	—	—	—	—
Göttingen		−2·0	76·6	335	i 11 38k	0	—	—	—	—
Vienna		−2·0	77·3	329	e 11 42	0	—	—	—	—
De Bilt		−2·0	77·4	338	i 11 43	0	e 21 24	− 1	e 31·2	—
Uccle	z.	−2·1	78·8	338	i 11 49a	− 1	—	—	—	—
Sofia		−2·1	79·2	322	e 11 53	0	i 21 43	− 1	40·2	—
Stuttgart		−2·1	79·3	334	i 11 52a	− 1	e 21 42	− 3	—	—
Zagreb		−2·1	79·5	328	e 11 52	− 2	e 21 43	− 4	—	—
Strasbourg		−2·1	79·9	335	i 11 55a	− 2	—	—	e 21·2	—
Ksara		−2·1	80·0	308	i 11 56a	− 1	i 21 52	− 1	—	—
Florissant		−2·1	80·5	43	e 11 58	− 1	i 21 53	− 5	—	—
St. Louis		−2·1	80·7	43	i 12 1	+ 1	i 21 58	− 2	—	—
Zurich		−2·1	80·7	334	e 11 59a	− 1	e 21 55	− 5	—	—
Chur		−2·1	80·9	334	e 12 0	− 1	e 21 54	− 9	—	—
Paris	z.	−2·1	81·1	338	i 12 3a	0	—	—	—	—
Little Rock		−2·1	82·7	46	i 12 10	− 1	i 22 16	− 6	—	—
Oak Ridge		−2·1	85·0	28	i 12 23	0	—	—	—	—
Helwan		−2·1	85·6	309	i 12 22	− 4	i 22 32	−20	—	—
Toledo	z.	−2·1	91·1	339	e 12 50	− 3	—	—	—	—

Additional readings :—
Toyooka SN = +5m.53s.
Kobe i = +3m.25s.
Zinsen iPE = +4m.5s.
College S = +13m.30s.
Calcutta iN = +17m.34s.
Almata e = +9m.16s.
San Francisco eE = +10m.21s.
Scoresby Sund +20m.12s. = S_cS −8s.
Tinemaha iN = +12m.5s.
Grozny e = +20m.28s.
Mount Wilson iPKP,PKPZ = +38m.56s., iZ = +40m.0s.
Pasadena ePKP,PKPZ = +38m.57s., eZ = +39m.47s.
Piatigorsk e = +20m.12s.
Tiflis epPNZ = +11m.33s., PPN = +14m.34s., PPPN = +15m.52s., iSP = +20m.42s., SSSE = +26m.52s., eN = +27m.46s. = SSSS −9s.
Sotchi e = +20m.52s.
Copenhagen +21m.7s.
Tucson e = +29m.18s.
Prague e = +11m.33s., +12m.39s., and +13m.48s.
Jena iN = +11m.39s.
Vienna e = +12m.13s. and +13m.42s.
Ksara ipP = +12m.35s., sP = +12m.51s., sS = +23m.2s.
Florissant ipP = +12m.22s., eZ = +12m.26s., iE = +21m.3s., iN = +22m.2s., eN = +23m.0s.
St. Louis ipPEN = +12m.9s., esSE = +22m.12s.
Little Rock ipPEN = +12m.18s., iEN = +12m.58s., iE = +15m.18s., isSEN = +22m.30s.
Oak Ridge e = +13m.1s.
Long waves were also recorded at Hyderabad.

Nov. 12d. Readings also at 0h. (Andijan and Frunse), 8h. (Mount Wilson, Pasadena, near Berkeley, San Franciso, and Branner), 10h. (Florence), 11h. (Sumoto), 12h. (near Sumoto), 15h. (Pasadena and Mount Wilson), 6h. (Kobe, Oak Ridge, Andijan, and near Sumoto), 17h. (Hamburg), 18h. (Sofia and Tashkent), 20h. (Weston), 22h. (San Francisco), 23h. (Almata, Andijan, and Frunse).

Nov. 13d. 12h. 31m. 35s. Epicentre 56°·2N. 163°·3E. N.1.

A = −·5328, B = +·1599, C = +·8310 ; δ = 0 ;
D = +·287, E = +·958 ; G = −·796, H = +·239, K = −·556.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Sikka	14·0	248	4 50	+95	—	—	—	—
Ootomari	15·9	241	3 41	+ 1	6 53	+17	—	—
Nemuro	17·1	229	3 54	− 1	7 41	+39	—	—
Kusiro	17·9	230	3 47	−18	—	—	—	—
Haboro	18·0	242	3 40	−27	7 23	− 2	—	—
Asahigawa	18·2	239	4 15	+ 6	—	—	—	—
Sapporo	19·2	237	4 17k	− 4	8 26	+36	—	—
Urakawa	19·3	233	4 21	− 1	—	—	—	—
Muroran	19·9	238	4 25	− 4	—	—	—	—
Hatinohe	21·1	231	4 38	− 3	8 40	+12	—	—
Aomori	21·2	233	4 44	+ 2	—	—	—	—
Miyako	21·7	229	5 57	+69	—	—	—	—
Morioka	22·0	230	4 50	− 1	—	—	—	—
Mizusawa	22·5	230	4 52	− 4	9 6	+11	11·4	—
Isinomaki	23·0	230	4 58	− 3	—	—	—	—
Sendai	23·3	230	5 1a	− 3	9 20	+10	—	—
Yamagata	23·5	231	5 6	+ 1	—	—	—	—
Hukusima	23·9	230	5 7a	− 2	9 36	+15	—	—
Vladivostok	23·9	250	e 5 6	− 3	e 9 17	− 4	—	31·0
Aidu	24·2	230	4 46a	−26	9 3	−24	—	—
Onahama	24·4	228	5 2a	−12	—	—	—	—
College	24·8	48	i 5 22a	+ 4	9 34	− 3	14·1	—
Mito	25·1	228	5 20	− 1	9 38	− 5	—	—
Utunomiya	25·2	229	5 23	+ 1	—	—	—	—
Kakioka	25·3	228	5 22a	− 1	9 49	+ 3	—	—
Takada	25·4	234	5 25	+ 1	—	—	—	—
Tukubasan	25·4	228	5 21a	− 3	9 52	+ 4	—	—
Tyosi	25·5	225	5 24	− 1	9 58	+ 8	—	—
Kumagaya	25·7	229	5 25a	− 1	—	—	—	—
Maebasi	25·7	230	5 25	− 1	10 1	+ 8	—	—
Nagano	25·8	234	5 27	0	9 57	+ 2	—	—
Wazima	25·8	234	5 26	− 1	10 19	+24	—	—
Oiwake	25·9	230	5 28a	0	9 58	+ 1	—	—
Tokyo	26·0	227	5 31	+ 2	10 27	+29	—	—
Husiki	26·2	235	5 7	−24	—	—	—	—
Toyama	26·2	235	5 30	− 1	—	—	—	—
Yokohama	26·2	227	5 30a	− 1	—	—	—	—
Matumoto	26·3	230	5 29a	− 3	—	—	—	—
Kohu	26·5	229	5 33	− 1	10 21	+14	—	—
Hunatu	26·6	229	5 34	− 1	10 10	+ 1	—	—
Kanazawa	26·6	235	5 30	− 5	—	—	—	—
Mera	26·6	228	5 24	−11	—	—	—	—
Takayama	26·7	232	5 35	0	—	—	—	—
Misima	26·8	227	5 35a	− 1	—	—	—	—
Numadu	26·8	227	5 38	+ 2	—	—	—	—
Iida	26·9	229	5 35	− 2	—	—	—	—
Ito	26·9	227	5 39	+ 2	—	—	—	—
Sinkyo	26·9	259	6 6	+29	—	—	—	—
Gihu	27·5	230	5 42	− 1	10 24	0	—	—
Omaesaki	27·6	227	5 47	+ 3	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		27·6	230	5 41	− 3	—	—	14·1	20·5
Ibukisan		27·7	231	5 59	+15	—	—	—	—
Hamamatu		27·7	229	5 44	0	10 29	+ 2	—	—
Hikone		27·8	231	5 46	+ 1	10 48	+20	—	—
Miyadu		28·1	234	5 57	+ 9	—	—	—	—
Kameyama		28·1	231	5 46	− 2	10 50	+16	—	—
Toyooka		28·2	235	5 45	− 4	10 56	+21	14·7	21·8
Tu		28·2	231	5 30	−19	—	—	—	—
Kyoto		28·3	231	5 49	− 1	—	—	—	—
Osaka		28·7	233	5 59	+ 6	—	—	—	—
Osaka B		28·7	233	5 56	+ 3	—	—	—	—
Yagi		28·7	233	5 52	− 1	—	—	—	—
Kobe		28·8	233	e 5 49	− 5	e 10 47	+ 2	e 13·4	15·8
Sumoto		29·2	233	5 54	− 4	10 49	− 2	e 15·6	15·9
Wakayama		29·2	233	5 56	− 2	—	—	—	—
Fengtien		29·3	257	5 51	− 8	11 0	+ 7	—	—
Okayama		29·4	234	5 57	− 3	—	—	—	—
Siomisaki		29·6	231	6 0a	− 1	11 4	+ 6	—	—
Tokusima		29·6	233	6 1	0	—	—	—	—
Tadotu		29·8	234	6 0	− 3	—	—	—	—
Heizyo		30·0	251	e 6 9	+ 4	i 11 17	+13	i 16·7	18·4
Hamada		30·1	238	6 14	+ 8	—	—	—	—
Hirosima		30·3	236	7 5	PPP	12 45	SSS	—	—
Koti		30·5	234	6 8	− 1	—	—	—	—
Keizyo		30·5	247	e 6 6	− 3	e 11 28	+16	e 15·6	19·3
Matuyama		30·6	235	6 14	+ 4	—	—	—	—
Yingkow		30·7	257	6 8	− 3	11 22	+ 6	—	—
Zinsen		30·7	249	6 16	+ 5	11 28	+12	—	19·5
Husan		31·4	243	6 18	+ 1	13 17	SSS	—	18·6
Simidu		31·4	236	6 25	+ 8	11 31	+ 5	—	—
Hukuoka		31·9	237	5 48	−34	11 31	− 3	e 15·4	23·4
Hukuoka B		31·9	237	6 18	− 4	11 34	0	e 14·1	20·6
Ituhara		32·0	241	6 30	+ 7	—	—	—	—
Dairen		32·3	255	7 38	PPPP	—	—	—	—
Kumamoto		32·4	238	6 23a	− 3	—	—	—	—
Sitka		32·6	61	6 28	0	—	—	—	—
Unzendake		32·7	238	6 34	+ 5	—	—	—	—
Miyazaki		32·8	235	6 29a	− 1	11 55	+ 7	—	—
Titizima		32·8	215	6 35	+ 5	—	—	—	—
Nagasaki		32·9	238	6 25	− 6	11 46	− 3	—	—
Kagosima		33·5	236	6 41	+ 5	12 29	+31	—	—
Tomie		33·5	239	6 32	− 4	—	—	—	—
Chiufeng		34·5	263	i 6 41a	− 4	i 12 2	−12	—	21·0
Nake		36·7	236	7 14	+10	12 57	+10	—	—
Zi-ka-wei	z.	38·3	246	i 7 13	− 5	12 57	−14	20·7	24·4
Nanking		39·0	251	i 7 18	− 6	12 55	−26	20·6	27·0
Naha		39·4	235	7 23	− 4	13 34	+ 9	—	—
Taihoku		43·3	241	e 10 40	PPPP	e 18 54	SSSS	25·0	29·3
Karenko		44·2	240	7 31	−35	—	—	—	—
Seattle		44·4	67	e 8 12	+ 4	e 14 48	+ 7	e 18·5	—
Taityu		44·5	241	12 55	?	—	—	—	—
Honolulu		45·1	122	8 9	− 5	14 46	− 6	20·0	—
Taito		45·4	240	8 25	+ 9	—	—	—	—
Tainan		45·7	241	15 20	S	(15 20)	+20	—	—
Semipalatinsk		46·9	299	i 8 26	− 2	15 18	+ 1	—	—
Ferndale		48·1	75	e 8 51	+14	e 15 40	+ 6	—	—
Saskatoon		49·0	54	e 8 43	− 1	i 15 54	+ 7	—	—
Hong Kong		49·3	247	8 43	− 3	15 56	+ 5	23·8	31·4
Ukiah		49·7	76	8 50	+ 1	16 10	+13	21·3	—
Butte		50·3	62	8 58	+ 4	16 5	0	21·7	—
Sverdlovsk		51·0	316	i 9 6	+ 7	i 16 30	+15	25·0	—
Berkeley		51·1	77	e 8 58	− 2	e 16 23	+ 7	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
San Francisco		51·1	77	e 9 0	0	16 20	+ 4	—	—
Bozeman		51·4	62	e 9 1	− 1	16 24	+ 4	e 22·1	—
Branner		51·5	77	e 8 57	− 6	—	—	—	—
Lick		51·8	76	e 9 6	+ 1	e 16 27	+ 2	—	—
Manila		52·6	234	i 9 9a	− 2	i 16 57	+20	e 26·7	—
Scoresby Sund		53·3	3	9 17k	+ 1	17 .0	+14	28·4	—
Almata		53·5	295	9 14	− 4	16 54	+ 5	—	—
Fresno	N.	53·7	76	e 9 20	+ 1	—	—	—	—
Tinemaha		53·8	75	e 9 21	+ 1	e 17 2	+ 9	—	—
Palau		53·9	216	9 19	− 2	16 57	+ 3	—	—
Phu-Lien		54·1	254	e 9 20	− 2	e 17 16	+19	26·4	30·7
Haiwee		54·7	75	e 9 28	+ 2	e 17 22	+17	—	—
Frunse		54·9	296	9 26	− 2	—	—	27·4	—
Mount Wilson		56·1	77	i 9 36	− 1	e 17 15	− 9	—	—
Pasadena		56·1	77	i 9 36	− 1	e 17 25	+ 1	i 23·8	—
Riverside		56·6	77	e 9 41	+ 1	e 17 35	+ 4	—	—
Andijan		57·6	296	e 9 47	0	e 17 59	+15	31·4	—
La Jolla		57·6	77	e 9 45	− 2	—	—	—	—
Tchimkent		57·8	299	e 9 46	− 3	—	—	—	—
Pulkovo		58·2	334	i 9 52	0	i 17 59	+ 7	—	32·0
Tashkent		58·7	298	i 9 53	− 2	18 7	+ 8	30·1	—
Denver		58·8	64	e 10 1	+ 5	i 18 25	+25	e 27·3	36·3
Moscow		59·7	328	i 10 0	− 2	18 16	+ 4	28·9	38·7
Ivigtut		60·0	17	10 5	+ 1	18 27	+11	25·4	—
Upsala		60·8	341	i 10 9	− 1	i 18 22	− 4	e 29·4	40·9
Samarkand		61·1	298	10 14	+ 2	18 22	− 8	—	—
Tucson		61·5	73	i 10 18	+ 3	18 33	− 3	e 27·2	—
Bergen		62·1	348	10 17a	− 2	19 2	+19	28·4	41·4
Dehra Dun		62·7	284	11 35	+72	20 35	ScS	31·7	40·4
Calcutta	N.	63·1	270	10 26	0	19 13	+17	31·0	36·8
Madison		63·5	50	e 10 29	0	e 18 57	− 4	e 26·2	—
Loyola		65·2	51	i 10 40	0	i 19 38	+16	—	—
Agra		65·2	281	10 33	− 7	i 19 23	+ 1	30·5	44·6
Chicago		65·3	51	e 10 39	− 2	i 19 21	− 3	e 27·9	—
Copenhagen		65·6	342	10 41a	− 1	19 38	+11	26·4	—
Ann Arbor		66·5	47	i 10 49	0	i 19 43	+ 4	i 27·4	39·8
Florissant		66·5	54	e 10 44	− 5	i 19 37	− 2	—	—
St. Louis		66·7	54	e 10 47	− 3	19 43	+ 2	e 31·1	35·7
Ottawa		67·0	40	e 10 51	− 1	i 19 43	− 2	e 31·4	—
Edinburgh		67·3	352	i 11 10	+16	i 19 57	+ 9	28·4	34·8
Grozny		67·5	315	i 10 57	+ 2	19 58	+ 7	33·4	—
Buffalo		67·9	43	i 10 57	− 1	i 19 55	− 1	—	—
Piatigorsk		67·9	317	i 10 57	− 1	19 57	+ 1	28·3	—
Hamburg		68·1	343	i 10 56a	− 3	e 19 57	− 1	e 37·2	42·4
Durham		68·3	350	i 11 1	+ 1	e 20 2	+ 1	—	—
Lemberg		68·7	332	e 11 17	+14	e 20 26	+21	e 28·5	46·8
Vermont		68·7	39	i 11 4	+ 1	i 20 5	0	e 34·2	—
Little Rock		68·9	58	e 11 3	− 1	e 20 6	− 2	e 29·1	32·5
Tiflis		69·2	315	i 11 4	− 2	20 16	+ 5	34·4	48·4
Ithaca		69·3	42	i 11 7	+ 1	i 20 13	0	—	—
Stonyhurst		69·3	351	11 10	+ 4	i 20 19	+ 6	29·4	32·8
Sotchi		69·5	320	i 11 7	− 1	20 19	+ 4	34·4	—
Czernowitz		69·6	331	i 11 0	− 8	20 30	+14	34·5	40·0
Theodosia		69·7	323	i 11 9	0	e 20 21	+ 3	36·4	—
Bidston		69·8	351	i 11 7	− 2	i 20 40	+21	e 28·4	43·6
Göttingen		70·0	343	i 11 9k	− 2	i 20 25	+ 4	e 30·4	44·4
Pennsylvania		70·1	44	e 11 12	+ 1	e 19 50	−32	e 28·4	45·2
De Bilt		70·2	346	i 11 12a	0	i 20 35	+11	e 31·4	36·3
Rathfarnham Castle		70·2	353	i 10 8	−64	i 20 24	0	28·3	32·4
Simferopol		70·2	324	11 12	0	i 20 26	+ 2	33·4	—

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		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Jena		70·3	341	e 11 10	− 3	i 20 25	0	e 34·0	47·5
East Machias		70·4	35	i 11 12	− 1	i 20 26	0	e 34·9	—
Erevan		70·6	314	11 18	+ 4	e 20 34	+ 6	35·4	—
Prague		70·6	339	i 11 14a	0	20 36	+ 8	e 31·4	36·4
Yalta		70·6	324	i 11 14	0	i 20 30	+ 2	32·4	—
Sebastopol		70·7	325	11 15	0	e 20 32	+ 2	33·4	—
Cheb		71·0	341	e 11 17	0	e 20 40	+ 7	e 36·4	44·4
Oak Ridge		71·0	39	i 11 13	− 4	20 45	+12	—	—
Weston		71·2	39	i 11 17	− 1	20 35	0	—	—
Oxford	E.	71·3	350	i 11 17	− 2	i 20 41	+ 4	e 29·9	55·5
	N.	71·3	350	e 11 10	− 9	i 20 52	+15	e 29·9	55·5
Kew		71·5	349	i 11 19	− 1	i 20 45	+ 6	28·4	43·7
Fordham		71·6	41	i 11 19	− 1	i 20 33	− 7	32·5	36·4
Uccle		71·6	346	i 11 18a	− 2	i 20 45	+ 5	e 30·4	36·7
Philadelphia		71·9	42	i 11 15	− 7	i 20 25	−19	i 33·3	—
Vienna		72·0	337	i 11 22a	− 1	20 50	+ 5	e 32·9	50·9
Budapest		72·1	335	i 11 26	+ 3	20 52	+ 6	32·4	40·9
Hyderabad		72·7	275	11 20	− 7	20 50	− 3	34·2	47·0
Karlsruhe		72·7	343	11 25	− 2	20 59	+ 6	38·7	54·5
Stuttgart		72·8	342	11 27a	− 1	e 20 55	+ 1	e 37·4	48·4
Apia		73·0	153	e 11 15	−14	e 20 54	− 3	e 32·8	—
Bucharest		73·1	328	e 11 49	+20	21 1	+ 3	—	46·6
Medan		73·1	250	11 28	− 1	i 20 57	− 1	e 39·4	—
Graz		73·3	337	i 11 25	− 6	i 21 0	0	e 32·4	48·6
Strasbourg		73·3	342	i 11 30	− 1	21 8	+ 8	e 33·4	41·4
Paris		73·8	347	i 11 32	− 1	i 21 12	+ 6	31·4	36·4
Jersey		73·9	350	i 11 39	+ 5	i 21 13	+ 6	37·7	53·4
Basle		74·3	343	e 11 34	− 2	e 21 13	+ 1	—	—
Belgrade		74·3	332	e 11 34a	− 2	i 21 19	+ 7	e 39·1	42·2
Zurich		74·3	342	e 11 36a	0	e 21 23	+11	—	—
Zagreb		74·4	336	e 11 36a	− 1	i 21 16	+ 3	e 39·2	50·9
Bombay		74·6	280	i 11 34	− 4	i 21 17	+ 2	36·4	45·9
Chur		74·6	343	e 11 36	− 2	e 21 2	−13	—	—
Columbia		74·6	50	e 11 35	− 3	e 21 12	− 3	e 32·7	—
Neuchatel		74·9	343	e 11 37	− 3	e 20 29	−50	—	—
Laibach	N.E.	75·0	338	e 11 39	− 1	i 21 25	+ 5	e 38·5	—
Sofia		75·5	330	e 11 44	+ 1	e 21 36	+10	40·6	53·3
Padova		75·6	339	e 11 50	+ 6	i 21 39	+12	e 40·4	50·4
Florence		77·3	340	11 51	− 3	i 21 46	0	—	—
Batavia		77·5	237	11 49	− 6	i 21 33	−15	e 45·4	—
Tacubaya	N.	78·0	72	11 54	− 3	—	—	—	—
Kodaikanal	E.	79·2	272	i 12 0	− 4	i 21 58	− 9	i 38·4	45·0
Ksara		79·5	318	i 12 4a	− 1	22 13	+ 3	—	—
Bagnères		79·7	347	e 12 12	+ 6	22 29	+17	e 36·4	50·4
Colombo		80·6	268	12 7	− 4	22 19	− 3	38·2	48·4
Barcelona		81·1	345	12 14	0	22 34	+ 7	37·8	51·3
Capodimonte	E.	81·2	336	e 13 12	+58	e 22 17	−11	29·1	42·4
Merida	N.	81·7	64	i 12 25	+ 8	—	—	—	—
Tortosa	E.	81·9	346	e 12 37	+19	22 36	0	e 37·4	48·5
Carloforte		82·3	340	12 1	−19	22 1	−39	—	—
Toledo		83·3	350	i 12 25	0	22 49	− 1	39·9	57·0
Helwan		84·8	319	i 12 30	− 2	22 55	[− 3]	—	65·5
Algiers		85·5	343	i 12 37	+ 1	i 23 14	+ 1	i 41·2	51·4
Granada		85·9	349	i 12 38	0	e 23 2	[− 4]	—	—
Almeria		86·2	348	i 12 46	+ 7	e 23 8	[0]	e 37·6	50·2
San Fernando		86·9	351	i 12 47	+ 4	i 23 29	+ 3	39·9	—
Riverview		90·6	190	i 12 59k	− 1	i 23 33	[− 3]	e 42·2	45·1
Sydney		90·7	190	i 23 49	S	(i 23 49)	[+12]	51·6	66·3
Adelaide		93·5	201	e 13 10	− 4	i 23 45	[− 8]	44·1	49·7
San Juan		94·7	45	13 19	0	23 56	[− 3]	e 48·6	—
Arapuni		94·9	171	—	—	i 24 31	−10	e 45·1	49·4

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Melbourne		95·3	195	e 13 32	+10	24 37	− 8	47·0	50·1
Perth		96·9	219	17 5	PP	29 55	?	—	—
Wellington		98·0	172	i 21 17	PPPP	e 25 0	− 9	e 41·4	—
Christchurch		100·1	174	i 13 45a	+ 1	24 17	[− 9]	47·4	—
Dakar	E.	109·1	1	i 16 20	?	e 28 23	PS	50·4	67·5
Huancayo		117·2	70	e 11 0	?	e 19 21	?	e 47·7	—
Tananarive		119·9	281	e 23 57	?	26 4	[+14]	53·7	67·4
La Paz		124·7	66	15 41	?	25 46	[−18]	55·6	65·4
Rio de Janeiro	E.	141·4	41	e 19 52	[+29]	i 35 7	?	i 57·4	—
	N.	141·4	41	e 19 53	[+30]	i 35 5	?	i 57·4	—
La Plata		145·0	70	19 37	[+ 3]	—	—	61·4	—
Cape Town		147·3	298	i 19 41	[+ 3]	—	—	70·0	81·0

Additional readings :—
Nemuro PP = +4m.19s.
College eP = +5m.25s., iPP = +5m.50s., PPP = +5m.54s., S = +9m.43s., iS = +9m.58s.
Mito i = +7m.5s.
Kanazawa i = +7m.15s.
Toyooka ePZ = +5m.55s., iEN = +6m.47s.
Tu i = +6m.25s.
Osaka i = +6m.54s.
Kobe PZ = +5m.52s., eSEN = +10m.50s.
Sumoto eSZ = +11m.18s.
Keizyo ePPEN = +7m.16s.
Zinsen iPPE = +7m.16s.
Chiufeng eSEN = +12m.20s.
Zi-ka-wei PPZ? = +8m.34s., PPPZ = +9m.3s., PPPPZ? = +9m.14s., SSZ? = +15m.33s., SSSZ? = +16m.19s., SSSSZ = +16m.37s., iZ = +18m.49s. and +19m.57s.
Nanking PP = +8m.59s., SEN = +13m.5s., iZ = +22m.13s.
Seattle e = +8m.37s. and +9m.0s., ePP = +10m.6s., ePPP = +10m.42s., ePP = +11m.6s., e = +11m.40s., e = +13m.8s., eScS = +18m.21s.
Honolulu P = +8m.19s., PP = +10m.19s., e = +10m.31s., iS = +14m.56s., S = +14m.58s., eSS = +18m.15s., SSS = +18m.40s.
Ferndale eN = +9m.1s.
Hong Kong PcP = +10m.5s., PP = +10m.30s., PPP = +12m.52s., ScS = +18m.37s., SS = +19m.25s., SSS = +22m.5s.
Ukiah eSSS = +20m.41s.
Butte PP = +11m.0s., ePPP = +12m.3s., ePS = +17m.0s., SS = +20m.3s.
Berkeley iN = +9m.2s., eE = +16m.9s., eE = +16m.29s., eN = +21m.56s., eE = +21m.59s.
San Francisco ePPPN = +12m.6s., eSE = +16m.28s.
Bozeman PS = +16m.33s. and +16m.48s., e = +17m.43s., eSS = +20m.9s.
Lick eScSE = +19m.5s.
Manila iN = +18m.19s.
Scoresby Sund eN = +10m.31s., PPN = +11m.25s., PPP = +12m.21s., eN = +12m.45s., PcSN = +13m.55s., eE = +17m.36s., ScS = +18m.37s., e = +19m.21s., SS = +20m.49s., SSS = +21m.37s., Lq = +23·4m.
Mount Wilson iPKP,PKPZ = +39m.40s.
Pasadena ePPPNZ = +13m.5s., eSN = +20m.37s., iPKP,PKPZ = +39m.35s.
Denver epPE = +10m.10s., ipPEN = +10m.13s., iPcPEN = +10m.47s., ePPN = +12m.17s., epPPE = +12m.31s., iSPE = +18m.46s.
Upsala PP = +12m.22s., PPP = +13m.57s.
Tucson e = +13m.1s., i = +20m.17s., eSS = +22m.47s., eSSS = +25m.45s.
Bergen P = +10m.20s., ePP = +12m.42s.
Calcutta PPPN = +14m.12s., SSSN = +25m.59s.
Loyola ePP = +13m.15s., iSS = +26m.45s.
Agra PPE = +13m.0s., PPE = +14m.22s., iN = +19m.33s., PSE = +19m.52s., SSE = +23m.58s., SSSE = +26m.18s.
Chicago e = +20m.45s., eSS = +22m.54s., i = +26m.46s.
Copenhagen ePcP = +11m.5s., PP = +13m.11s., PPP = +14m.49s., PcS = +15m.16s., SN = +19m.46s., PS = +20m.5s., ScSE = +20m.49s., eN = +21m.37s., eE = +23m.0s., SSN = +24m.7s.
Ann Arbor ePPE = +13m.37s., ePPPN = +15m.1s., i = +21m.1s., eSSN = +24m.1s., eSSE = +24m.49s.
Florissant ipPN = +10m.52s., iPcP = +11m.16s., ePP = +13m.17s., epPP = +13m.29s., ePPP = +14m.36s., epPPP = +14m.53s., iPPPP = +15m.27s., isS = +19m.51s., iSP = +20m.2s., iPPPS = +20m.8s., iSS = +24m.6s.
St. Louis epPN = +10m.55s., iPcPEN = +11m.3s., iPPEN = +12m.25s., iSSN = +24m.16s., isSSN = +24m.44s.
Ottawa PP = +13m.21s., e = +27m.13s.
Edinburgh i = +11m.16s., +12m.39s., 20m.43s., and +21m.33s.

Continued on next page.

Buffalo i = +13m.13s., iPP = +13m.31s., iPPS = +21m.3s.
Hamburg ePPEZ = +13m.30s., iSE = +20m.9s., iPSN = +20m.43s.
Durham iS = +20m.15s.
Vermont i = +12m.14s., iPP = +13m.25s., e = +22m.43s., eSSS = +27m.55s.
Little Rock ipPEN = +11m.15s., iPPE = +13m.43s., esSE = +20m.24s.
Tiflis i = +11m.21s., PPPZ = +15m.21s., ePSN = +20m.27s., eSKSN = +21m.2s., eSSN = +25m.29s., eSSSN = +28m.16s.
Ithaca iEN = +13m.37s., iPPN = +13m.49s., eE = +25m.1s., eEN = +28m.15s.
Stonyhurst SS = +23m.35s.
Czernowitz i = +11m.8s., PP = +14m.9s., PPP = +15m.54s., SS = +26m.10s.
Bidston i = +12m.45s., iPP = +13m.47s., eSS = +25m.22s.
Göttingen iEZ = +11m.21s., iPP = +13m.46s., ePPP = +15m.43s., iSN = +20m.35s., iPS = +20m.58s., eSSEZ = +25m.13s., eSSN = +25m.43s., iSSN = +28m.54s.
Pennsylvania iP = +11m.15s., ePP = +13m.50s., ePPP = +15m.37s., eSKS = +21m.6s.
Philadelphia iPPP = +15m.43s., e = +18m.52s., iSS = +25m.7s., iSSS = +28m.37s.
De Bilt eSS = +25m.7s.
Rathfarnham Castle i = +12m.30s., PP = +13m.42s., i = +14m.45s. and +21m.7s., SS = +25m.6s.
Jena ePE = +11m.13s., ePN = +11m.23s., iPPE = +13m.53s., iPPZ = +13m.50s., iSN = +20m.41s., iSZ = +20m.43s., eN = +25m.25s.
East Machias i = +12m.1s., e = +13m.31s. = PP −11s., i = +21m.27s., iSSS = +28m.21s.
Prague ePP = +13m.53s., ePPP = +15m.48s., ePPPP = +16m.31s., ePS = +21m.13s., eSS = +25m.37s.
Oak Ridge eN = +13m.45s. = P_cP − 2s., PPPE = +15m.43s., eN = +20m.21s., i = +32m.21s.
Weston iPP = +14m.5s.
Oxford iN = +25m.48s.
Kew iNZ = +12m.49s., iPPZ = +14m.3s., iPPN = +14m.13s., iNZ = +20m.55s., eSSEN = +25r .19s., iN = +25m.48s.
Fordham iPP = +13m.57s., ipPPP = +15m.47s., iSP = +21m.26s., isSP = +21m.39s., e = +23m.36s., isSS = +25m.49s., i = +27m.35s. and +30m.48s.
Uccle iSSE = +25m.25s.
Philadelphia iPPP = +15m.43s., e = +18m.52s., iSS = +25m.7s., iSSS = +28m.37s.
Vienna e = +11m.41s., PP = +14m.36s., PPP = +15m.55s., S_cS = +21m.31s., SS = +25m.52s., SSS = +29m.7s.
Budapest iE = +11m.58s., iN = +12m.4s., +12m.12s., = +12m.24s. and +12m.36s., iE = +12m.46s., PPEN = +14m.2s., eN = +14m.28s., i = +15m.10s. and +16m.0s., SE = +20m.56s., PSN = +21m.14s., S_cSN = +21m.32s., iE = +22m.0s. and +26m.12s.
Stuttgart i = +11m.36s., ePP = +14m.9s., ePPP = +16m.3s., iPS = +21m.35s., eSS = +25m.55s.
Apia ePP = +14m.3s., eSS = +25m.35s., e = +30m.25s. ?
Bucharest PPEN = +14m.16s.
Medan iN = +22m.15s.
Graz iP_cP = +11m.51s., iPP = +14m.19s., iPPP = +16m.19s., iPS = +21m.31s., iSS = +27m.15s.
Strasbourg i = +12m.24s., iPP = +14m.15s., PPP = +16m.0s., PPPP = +17m.15s., iPS = +21m.55s., i = +22m.40s. and +23m.46s., iSS = +25m.55s., SSS = +30m.0s.
Jersey PP? = +16m.0s., PS? = +21m.40s., SS? = +26m.8s., SSS = +29m.0s.
Belgrade iNE = +14m.17s. = PP +2s. and +16m.19s., iSNW = +21m.23s.
Zagreb i = +11m.46s., ePP = +14m.19s., ePPP = +16m.8s., i = +21m.25s., eNEZ = +26m.55s., eNW = +30m.28s. = SSSS −4s., eNE = +32m.21s., eZ = +32m.42s., eNW = +34m.13s.
Bombay PPEN = +14m.23s., PSEN = +21m.41s., SSEN = +26m.5s., SSSEN = +29m.39s.
Columbia e = +12m.18s. and +21m.0s., S = +21m.26s. = SSS −5s., e = +28m.51s., SSS = +30m.12s.
Laibach iNE = +12m.34s. and +16m.23s.
Sofia SP = +22m.10s.
Batavia iN = +21m.52s.
Kodaikanal iPPE = +15m.5s., iPPPE = +16m.59s., iPSE = +22m.51s., iSSE = +27m.34s., iSSSE = +31m.2s.
Ksara PP = +15m.11s., iPS = +22m.55s.
Bagnères ePPN = +15m.24s., iPPPE = +17m.8s., iN = +23m.35s., SSN = +28m.5s.
Barcelona PS = +23m.21s.
Toledo P_cPZ = +12m.30s., PPZN = +15m.47s., PPPE = +17m.43s., SEN = +22m.56s., S_cSE = +23m.10s., PSEN = +23m.47s., SSZ = +28m.42s., PKKPZ = +30m.16s., GE = +35m.55s., SKKSE = +37m.20s., PKP,PKPZ = +38m.36s., PKPPKSN = +42m.15s.
Helwan PP = +15m.55s., PS = +23m.55s.

Continued on next page.

Algiers i = +13m.26s., iPP = +15m.58s., iPPP = +17m.59s., PS = +24m.10s., SS = +29m.5s., SSS = +32m.55s.
San Fernando PP = +16m.43s., PPP = +18m.21s., SKS = +22m.31s., SSS = +32m.27s.
Riverview iE = +13m.21s., eE = +23m.52s., iN = +24m.0s., eL_qE = +38·1m.
Sydney e = +21m.55s., iS = +34m.10s.
Adelaide iPP? = +16m.53s., i = +20m.20s. = PPPP + 3s. and +23m.25s., iS = +24m.4s., i = +24m.27s., +25m.44s., +26m.46s., +30m.47s., +37m.33s., and +38m.13s.
San Juan i = +13m.56s. and +16m.16s., ePP = +16m.59s., iPP = +17m.14s., i = +17m.46s., e = +18m.22s., PPP = +19m.22s., eS = +24m.2s. and +24m.30s., SKKS = +24m.46s., S = +24m.54s., PS = +25m.3s. and +25m.20s., eSS = +31m.4s., e = +32m.24s. and +38m.20s.
Arapuni i = +39m.25s.
Melbourne e = +14m.35s. and +23m.48s., SS = +31m.39s.
Perth ? = +24m.10s., S = +30m.25s., ? = +35m.25s.?
Wellington e = +24m.13s. and +25m.54s.
Christchurch PPNZ = +17m.47s., iNZ = +23m.51s., iS = +25m.16s., PS = +26m.33s., SSEN = +32m.11s., SSSN = +35m.59s., GE = +41m.13s.
Dakar ePPE = +20m.19s., ePPPE = +22m.15s., eSKKSE = +27m.32s., iPS = +29m.49s., ePPS = +30m.54s., eSSS = +39m.13s.
Huancayo ePP = +14m.58s., ePPP = +17m.20s., ePPP = +18m.0s., e = +19m.30s., SKS = +21m.13s., ePS = +24m.7s., SS = +29m.36s., eSS = +31m.20s., e = +35m.51s., SSS = +36m.27s.
Tananarive S = +27m.53s., N = +32m.24s., E = +32m.33s., SSN = +36m.27s., E = +37m.25s.?, SSS = +40m.55s.
La Paz iPKPZ = +18m.57s., iPPZ = +20m.50s., SKPZ = +24m.18s., SSN = +37m.13s., SSSE = +41m.13s.
Rio de Janeiro iPE = +22m.49s., iPN = +22m.51s., iSSE = +40m.44s.
Cape Town iN = +19m.50s., iE = +19m.55s., iPP = +23m.17s., i = +23m.48s., iE = +24m.20s., iN = +33m.55s., iE = +33m.58s., iPPSN = +35m.55s., eSSE = +42m.5s., iPSSN? = +42m.58s., iPSS?E = +43m.4s., iSSSN = +47m.44s.
Long waves were also recorded at Santiago and Soengei Langka.

Nov. 13d. Readings also at 0h. (Vladivostok, Hong Kong, Nanking, Baku, Tiflis, Sverdlovsk, Semipalatinsk, Ksara, Bombay, Calcutta, Hyderabad, Copenhagen, Moscow, Pulkovo, and De Bilt), 1h. (East Machias), 7h. (San Juan), 10h. (Kodaikanal and Medan), 11h. (near Nanking), 12h. (Mount Wilson, Pasadena, Tinemaha, and near Sumoto), 13h. (Erevan, Tiflis, Haiwee, La Jolla, Mount Wilson (5), Pasadena (5), Tinemaha, and near Tananarive), 14h. (Apia, Mount Wilson, and Pasadena), 15h. (Almata, Frunse, near Andijan, and near Hastings), 16h. (Tiflis, Balboa Heights, and Mount Wilson), 17h. (Mount Wilson and Pasadena), 19h. (near Branner), 20h. (Mount Wilson, Pasadena, Sverdlovsk, and Tashkent), 21h. (Baku, Frunse, and near Andijan), 22h. (Mount Wilson, Pasadena, Baku, Tashkent, Tiflis, Pulkovo, Sverdlovsk, Ksara, and Chiufeng).

Nov. 14d. 0h. 57m. 48s. Epicentre 37°·5N. 145°·0E. (as on 1933 Mar. 14d.). X.

$A = -·6499$, $B = +·4550$, $C = +·6088$; $\delta = +3$;
$D = +·574$, $E = +·819$; $G = -·499$, $H = +·349$, $K = -·793$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa		3·4	299	i 0 45	− 4	1 22	− 5	—	—
Nagoya		6·9	253	e 1 42	+ 4	2 58	+ 2	—	3·5
Toyooka	E.	8·4	259	1 58	− 1	3 32	− 2	—	—
	N.	8·4	259	e 2 8	+ 9	3 42	+ 8	—	—
	Z.	8·4	259	2 3	+ 4	3 33	− 1	—	—
Kobe	E.	8·4	253	e 1 58	− 1	3 41	+ 7	—	4·3
	N.	8·4	253	e 2 1	+ 2	3 36	+ 2	—	4·6
Sumoto	E.	8·8	252	e 2 4	− 1	e 3 38	− 6	—	4·7
	N.	8·8	252	e 2 3	− 2	e 3 43	− 1	—	5·0
Vladivostok		11·4	303	e 2 42	+ 2	—	—	5·7	6·9
Hukuoka B		12·5	256	e 3 18	+23	e 5 21	+ 6	—	—
Husan		13·1	264	e 3 0	− 3	e 7 11	L	(e 7·2)	—
Keizyo	E.	14·3	276	e 3 15	− 4	e 6 49	?	e 8·4	—
Zi-ka-wei		20·4	260	—	—	e 7 43	−31	(12·6)	—
Nanking		22·1	264	e 4 49	− 3	e 8 49	+ 1	e 12·2	14·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Chiufeng		22·6	287	e 5 5	+ 8	e 8 41	−16	—	13·3
Sverdlovsk		56·4	319	9 54	+15	e 17 41	+13	30·2	34·7
Tashkent		56·7	299	—	—	e 18 37	+65	e 28·2	33·1
Tiflis	E.	72·5	310	e 11 26	0	e 21 47	+56	e 39·2	47·0
Mount Wilson	Z.	74·7	58	i 12 6	+27	—	—	—	—
Pasadena	Z.	74·7	58	e 11 56	+17	—	—	—	—
Ksara		82·9	307	i 12 31	+ 8	e 23 38	[+52]	—	—

Additional readings :—
Tashkent e = +22m.12s.
Ksara e = +17m.26s.
Long waves were also recorded at Hong Kong, Phu-Lien, Calcutta, Baku, Pulkovo, Moscow, Copenhagen, De Bilt, Cheb, Stuttgart, and Oak Ridge.

Nov. 14d. 1h. Epicentre probably in sea somewhere south of Japan.
Hukuoka B eP = 25m.7s., eS = 26m.7s.
Hukuoka eP? = 25m.13s., eS? = 26m.2s.
Sumoto PEN = 25m.27s., SE = 27m.22s., SN = 27m.25s., M = 27m.49s.
Kobe ePZ = 25m.36s., ePN = 25m.39s., ePE = 25m.41s., eSZ = 27m.16s., eSN = 27m.20s., M = 27m.45s.
Toyooka PZ = 25m.50s., PEN = 25m.56s., iN = 26m.53s., SN = 27m.40s.
Husan eP = 26m.3s., eS = 27m.12s.
Nagoya e = 27m.55s.
Keizyo eP = 28m.29s.
Zinsen eSEN = 29m.1s.
Ksara e = 39m.36s. and 50m.24s.
Long waves were also recorded at Hong Kong, Chiufeng, Nanking, Tiflis, De Bilt, Paris, and Strasbourg.

Nov. 14d. 1h. 37m. 8s. Epicentre 13°·5N. 92°·5W. (as on 1936 Sept. 3d.). X.

A = −·0424, B = −·9714, C = +·2334 ; δ = −11 ;
D = −·999, E = +·044 ; G = −·010, H = −·233, K = −·972.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Merida	N.	8·0	20	2 1	+ 8	—	—	—	—
Tacubaya	N.	8·8	313	1 58?	− 7	—	—	—	—
Little Rock	N.	21·3	2	e 4 47	+ 4	—	—	—	—
Columbia		23·0	25	e 4 59	− 2	—	—	e 13·0	—
Tucson		25·2	321	e 5 23	+ 1	e 9 44	0	e 12·8	—
St. Louis	E.	25·2	4	e 5 14	− 8	e 10 24	+40	—	—
Florissant		25·4	4	e 4 26	−58	e 9 55	+ 7	—	20·9
San Juan		25·8	76	e 5 16	−11	(e 10 4)	+ 9	e 16·9	—
Philadelphia		30·5	27	—	—	e 12 20	+68	e 18·3	—
Huancayo		30·7	146	e 8 16	PPP	e 11 56	+40	e 14·5	—
Mount Wilson	Z.	31·1	316	e 6 14	− 1	i 11 47	+26	—	—
Pasadena		31·1	316	e 6 13	− 2	e 9 16	?	e 15·7	—
Tinemaha		32·9	320	e 6 32	+ 1	—	—	—	—

Additional readings :—
Columbia ePP = +5m.18s.
St. Louis eE = +5m.46s.
Florissant iP = +4m.28s., eE = +10m.16s., eEN = +10m.28s.
San Juan S is given as additional eL.
Mount Wilson iZ = +9m.47s.
Long waves were also recorded at Oaxaca, La Paz, and Seattle.

Nov. 14d. 9h. 29m. 10s. Epicentre 55°·4N. 162°·7E. (as on 1931 Jan. 12d.). R.2.

A = −·5422, B = +·1689, C = +·8231 ; δ = 0 ;
D = +·297, E = +·955 ; G = −·786, H = +·245. K = −·568.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	21·7	231	—	—	9 6	+26	—	—
College		25·6	48	5 27	+ 2	(e 9 56)	+ 5	e 9·9	—
Chiufeng		34·0	266	—	—	e 15 8	?	—	21·2
Nanking		38·4	251	—	—	e 17 13	?	e 20·8	—
Sverdlovsk		51·4	318	9 11	+ 9	16 37	+17	24·8	31·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tinemaha		54·4	76	e 9 23	− 1	—	—	—	—
Haiwee	N.	55·2	77	e 9 30	0	—	—	—	—
Mount Wilson	Z.	56·6	79	i 9 38	− 2	—	—	—	—
Pasadena		56·6	79	i 9 38a	− 2	—	—	—	—
La Jolla		58·1	79	e 9 50	− 1	—	—	—	—
Pulkovo		58·8	335	e 9 53	− 3	—	—	32·8	38·8
Tashkent		58·8	300	e 10 28	+32	—	—	e 30·3	37·8
Moscow		60·2	329	i 10 6	0	—	—	—	—
Grozny		67·8	316	i 11 2	+ 5	—	—	45·3	—
Baku		68·6	313	e 11 4	+ 2	e 20 47	+43	34·2	45·9
Tiflis		69·6	316	11 9	+ 1	e 20 17	+ 1	35·8	47·3
Simferopol		70·7	325	e 11 18	+ 3	—	—	—	—
Yalta		71·1	325	e 11 17	0	—	—	e 30·8	—
Vienna	Z.	72·5	338	e 11 20?	− 6	—	—	—	—
Zurich		75·0	343	e 11 38	− 2	—	—	—	—
Neuchatel		75·6	345	e 11 42	− 2	—	—	—	—
Ksara		79·9	319	i 12 8a	+ 1	e 22 16	+ 1	—	53·8

Additional readings :—
Tashkent e = +13m.1s. and +22m.2s.
Tiflis ePSN = +20m.38s., eSKSE = +21m.9s., eSSSE = +28m.35s.
Ksara ePS = +22m.59s.
Long waves were also recorded at Hong Kong, Agra, Calcutta, and Copenhagen.

Nov. 14d. 14h. 29m. 47s. Epicentre 55°·4N. 162°·7E. (as at 9h.). R.2.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	21·7	231	(5 8)	+20	5 8	P	—	—
Vladivostok		23·2	251	—	—	e 7 9	?	12·1	14·9
College		25·6	48	—	—	(e 9 49)	− 2	e 9·8	—
Nagoya		26·8	232	e 5 58	+22	—	—	—	—
Chiufeng		34·0	266	e 8 8	PPPP	e 12 27	+21	—	27·3
Zi-ka-wei	Z.	37·7	247	e 7 58	+46	e 9 39	?	—	25·8
Nanking		38·4	251	—	—	e 17 7	ScS	e 21·0	27·2
Sverdlovsk		51·4	318	i 9 9	+ 7	16 30	+10	27·9	32·1
Tinemaha		54·4	76	e 9 29	+ 5	—	—	—	—
Frunse		55·0	296	e 9 31	+ 2	—	—	—	—
Haiwee	N.	55·2	77	e 9 34	+ 4	—	—	—	—
Mount Wilson	Z.	56·6	79	e 9 38	− 2	—	—	—	—
Pasadena	Z.	56·6	79	e 9 39	− 1	—	—	—	—
Andijan		57·6	298	e 9 37	−10	—	—	e 30·6	—
La Jolla		58·1	79	e 9 55	+ 4	—	—	—	—
Tashkent		58·8	300	e 9 29	−27	—	—	e 29·7	37·5
Pulkovo		58·8	335	9 51	− 5	18 6	+ 6	30·2	36·5
Moscow		60·2	329	i 10 3	− 3	e 18 21	+ 2	33·7	42·4
Calcutta	N.	62·8	273	—	—	e 19 36	+44	i 37·5	—
Agra	E.	65·0	283	—	—	e 19 18	− 2	—	—
Copenhagen		66·2	344	10 44	− 3	—	—	36·2	—
Grozny		67·8	316	11 59	+62	—	—	41·2	—
Tiflis		69·6	316	11 5	− 3	e 20 13	− 3	35·7	47·4
Little Rock	N.	69·6	58	e 11 8	0	—	—	—	—
Theodosia		70·2	325	e 11 11	− 1	—	—	e 42·2	—
Simferopol		70·7	325	e 11 13	− 2	—	—	—	—
Yalta		71·1	325	e 11 13	− 4	—	—	e 40·2	—
Sebastopol		71·2	325	e 11 21	+ 3	—	—	—	—
Bombay		74·4	282	—	—	e 21 13?	0	—	—
Zurich		75·0	343	e 10 37	−63	—	—	—	—
Ksara		79·9	319	i 12 6a	− 1		—	—	53·7

Additional readings :—
Mount Wilson iZ = +9m.45s.
Pasadena iZ = +9m.45s.
Tashkent e = +9m.52s., PP = +11m.57s., e = +12m.13s., +13m.50s., and +25m.1s.
Tiflis ePPPE = +15m.29s., eE = +32m.45s.
Ksara ePS = +22m.56s.
Long waves were also recorded at Baku, Strasbourg, Stuttgart, Cheb, Hyderabad, Hong Kong, and Phu-Lien.

Nov. 14d. 19h. 4m. 4s. Epicentre 40°·2N. 75°·2E. X.
(as on 1936 June 22d, and near 40°·1N. 75°·8E. suggested by the stations).

A = +·1951, B = +·7385, C = +·6455 ; δ = +12 ;
D = +·967, E = −·255 ; G = +·165, H = +·624, K = −·764.

		△	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Andijan		2·3	284	e 0 31	− 2	i 0 58	− 1	1·2
Frunse		2·7	350	e 0 52	P_g	i 1 37	S_g	1·7
Almata		3·3	22	1 4	P_g	i 2 7	S_g	2·2
Tchimkent		4·6	286	e 1 23	P_g	—	—	—
Samarkand		6·3	268	e 1 56	P_g	—	—	—

Additional readings :—
Andijan iP_g = +35s., iPP = +44s., iS_g = +1m.1s.
Frunse eP_g = +57s., PP = +1m.3s., e = +1m.13s., PS = +1m.20s.
Almata iPP = +1m.20s.

Nov. 14d. 19h. 28m. 30s. Epicentre 55°·4N. 162°·7E. (as at 14h.). R.3.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa	E.	21·7	231	(5 5)	+17	5 5	P	—	—
Vladivostok		23·2	251	—	—	e 10 19	+71	12·1	15·0
College		25·6	48	e 5 36	+11	(e 9 54)	+ 3	e 9·9	—
Chiufeng		34·0	266	e 8 10	PPPP	e 12 25	+19	—	21·4
Zi-ka-wei	Z.	37·7	247	e 9 15	?	—	—	—	28·9
Nanking		38·4	251	—	—	e 17 10	S_cS	e 21·2	27·0
Semipalatinsk		47·0	300	e 8 34	+ 5	—	—	—	—
Sverdlovsk		51·4	318	i 9 9	+ 7	16 32	+12	33·0	33·5
Tinemaha		54·4	76	e 9 26	+ 2	—	—	—	—
Frunse		55·0	296	e 9 30	+ 1	—	—	—	—
Haiwee	N.	55·2	77	e 9 34	+ 4	—	—	—	—
Mount Wilson		56·6	79	i 9 41	+ 1	—	—	—	—
Pasadena	Z.	56·6	79	e 9 39	− 1	—	—	—	—
Andijan		57·6	298	e 10 47	+60	—	—	—	—
La Jolla		58·1	79	e 9 53	+ 2	—	—	—	—
Tashkent		58·8	300	i 9 52	− 4	18 4	+ 4	e 29·5	37·9
Pulkovo		58·8	335	9 49	− 7	e 18 2	+ 2	31·5	38·5
Moscow		60·2	329	10 4	− 2	18 27	+ 8	34·0	42·4
Calcutta	N.	62·8	273	—	—	e 18 54	+ 2	i 34·9	37·6
Agra	E.	65·0	283	—	—	e 19 9	−11	—	—
Copenhagen		66·2	344	10 45	− 2	—	—	31·5	—
Grozny		67·8	316	11 0	+ 3	e 20 20	+26	44·5	—
Baku		68·6	313	e 11 4	+ 2	e 20 11	+ 7	33·9	46·0
Tiflis		69·6	316	11 4	− 4	e 20 16	0	37·0	47·2
Theodosia		70·2	325	e 11 8	− 4	—	—	39·5	—
Simferopol		70·7	325	e 11 14	− 1	—	—	—	—
Yalta		71·1	325	e 11 9	− 8	—	—	e 40·5	—
Sebastopol		71·2	325	e 11 17	− 1	—	—	—	—
Bombay		74·4	282	—	—	e 21 30?	+17	—	—
Zagreb		74·9	338	e 11 38	− 2	—	—	—	—
Ksara		79·9	319	i 12 7a	0	e 22 18	+ 3	—	54·2

Additional readings :—
Sverdlovsk L_q = +26·9m.
Tiflis eSKKS = +21m.23s., eSSSN = +28m.16s., eE = +32m.42s.
Long waves were also recorded at Hong Kong, Phu-Lien, Hyderabad, and Cheb.

Nov. 14d. Readings also at 0h. (La Paz), 2h. (Hong Kong, Hukuoka B, and near Manila), 3h. (Mount Wilson, Pasadena, Wellington, and near Apia), 4h. (Agra, Bombay, Calcutta, Colombo, Kodaikanal, Sverdlovsk (2), Vladivostok, Ksara (2), Mount Wilson, and Pasadena), 5h. (Batavia, Nanking, Baku, Tashkent, Tiflis, Pulkovo, Copenhagen, Mount Wilson, Pasadena, La Paz, and near Apia), 10h. (Nanking and near Tiflis), 13h. (near Balboa Heights), 16h. (Budapest), 18h. (near Mizusawa and Nagoya), 20h. (Andijan and near Samarkand), 21h. (College), 22h. (Almeria, near Granada, and Toledo).

Nov. 15d. 21h. 50m. 16s. Epicentre 20°·5S. 177°·5W. N.2.

$A = -\cdot 9358$, $B = -\cdot 0409$, $C = -\cdot 3502$; $\delta = +3$;
$D = -\cdot 044$, $E = +\cdot 999$; $G = +\cdot 350$, $H = +\cdot 015$, $K = -\cdot 937$.

Correction for depth of focus 0·070 has been applied.

		Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Apia		−0·4	8·6	40	e 2 8	+12	3 42	+13	—	—
Wellington		−3·1	21·8	197	7 40	S	(7 40)	0	—	—
Melbourne		−5·0	36·7	235	i 6 23	+ 3	i 11 33	+ 2	—	15·0
Honolulu		−5·9	46·0	27	—	—	e 13 48	+10	—	—
Perth		−7·0	60·0	245	15 44?	S	(15 44?)	−58	—	—
Numadu		−7·6	69·3	324	10 19	+ 3	—	—	—	—
Hunatu		−7·7	69·7	324	9 49	−29	—	—	—	—
Manila		−7·7	69·9	296	10 24	+ 4	18 50	+ 5	—	—
Maebasi		−7·7	70·1	325	10 20	− 1	—	—	—	—
Oiwake		−7·7	70·4	325	10 29	+ 6	18 58	+ 7	—	—
Nagano		−7·7	70·8	325	10 28	+ 2	—	—	—	—
Miyazaki		−7·8	71·7	317	10 34	+ 3	19 14	+ 8	—	—
Kumamoto		−7·9	72·7	317	10 38	+ 1	—	—	—	—
Batavia		−8·0	74·4	270	i 10 49	+ 1	i 19 39	+ 2	—	—
Sanata Barbara		−8·1	77·7	47	i 11 10	+ 2	—	—	—	—
Berkeley		−8·1	78·1	43	e 11 10	− 1	e 20 24	+ 3	—	—
Zi-ka-wei	Z.	−8·1	78·1	311	e 11 8	− 3	e 20 56	+35	e 38·4	64·1
Ukiah		−8·1	78·3	41	e 12 54	+102	e 20 26	+ 2	—	—
Pasadena		−8·1	78·5	48	i 11 12k	− 1	e 20 30	+ 4	—	—
Mount Wilson		−8·1	78·7	48	e 11 14	0	—	—	—	—
Vladivostok		−8·2	78·8	325	e 11 9	− 5	e 20 32	+ 4	—	—
Riverside		−8·2	79·0	48	e 11 14	− 2	—	—	—	—
Fresno	N.	−8·2	79·0	45	e 11 16	0	—	—	—	—
Hong Kong		−8·2	79·2	300	11 14	− 3	20 34	+ 1	—	33·6
Haiwee	N.	−8·2	79·8	46	e 11 22	+ 2	—	—	—	—
Tinemaha		−8·2	80·2	45	e 11 22	− 1	e 20 48	+ 3	—	—
Nanking		−8·2	80·5	310	11 24	− 1	20 46	− 2	—	—
Tucson		−8·3	82·7	53	e 11 38	+ 1	e 21 15	+ 2	e 34·6	—
Phu-Lien		−8·4	84·9	295	e 11 44?	− 5	—	—	—	—
Chiufeng		−8·5	86·5	316	i 11 51k	− 6	i 21 45	− 9	—	—
College		−8·5	88·4	12	—	—	(e 20 50)	−85	e 20·8	—
Huancayo		−8·7	96·9	106	—	—	22 35	− 4	e 28·1	—
Calcutta	N.	—	101·4	291	—	—	i 23 39	[−54]	i 48·8	74·6
Kodaikanal	E.	—	107·5	275	e 17 44?	[−26]	—	—	—	—
Agra	E.	—	111·6	292	—	—	i 27 16	{+58}	—	—
Bombay		—	114·3	283	e 20 44?	PP	—	—	—	—
San Juan		—	115·7	79	e 22 25	PPP	23 46	PPPP	—	—
Tashkent		—	120·6	307	i 17 48	[−59]	—	—	—	—
Sverdlovsk		—	124·3	326	e 18 10	[−46]	—	—	—	—
Grozny		—	137·4	312	18 34	[−44]	i 22 20	PP	—	—
Tiflis		—	138·6	310	e 18 32	[−48]	—	—	—	—
Piatigorsk		—	139·0	315	e 18 29	[−51]	—	—	—	—
Sotchi		—	141·4	316	e 18 30	[−53]	—	—	—	—
Theodosia		—	143·5	321	i 18 40	[−49]	—	—	—	—
Copenhagen		—	144·0	351	i 18 41	[−50]	—	—	—	—
Simferopol		—	144·3	322	i 18 43	[−49]	i 20 58	?	—	—
Yalta		—	144·5	321	i 18 42	[−51]	—	—	—	—
Sebastopol		—	144·8	322	i 18 46	[−47]	—	—	—	—
Kaara		—	147·6	301	i 18 47k	[−51]	—	—	—	—
De Bilt	Z.	—	148·3	358	i 18 55	[−44]	—	—	—	—
Jena		—	148·7	349	e 18 51	[−49]	—	—	—	—
Prague	E.	—	149·0	346	e 18 56	[−44]	—	—	—	—
Uccle	Z.	—	149·7	359	e 18 54	[−47]	—	—	—	—
Vienna	Z.	—	150·1	342	i 18 53k	[−49]	e 21 0	?	—	—
Stuttgart	Z.	—	151·2	351	i 19 0k	[−43]	e 21 4	?	—	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Strasbourg	—	151·6	352	e 19 1	[−43]	—	—	e 44·7	—
Sofia	—	151·7	326	e 19 4	[−40]	—	—	—	—
Zagreb	—	152·4	339	e 18 55	[−50]	e 20 53	?	—	—
Basle	—	152·7	353	e 18 56	[−49]	—	—	—	—
Zurich	—	152·7	352	e 18 55k	[−50]	—	—	—	—
Chur	—	153·0	351	e 18 58	[−48]	—	—	—	—
Neuchatel	—	153·3	353	e 18 57	[−49]	—	—	—	—
Toledo	—	159·8	16	i 19 6	[−48]	25 15	?	—	—

Additional readings :—
Apia P_cP = +8m.8s. ; T_0 = 21h.50m.20s.
Wellington i = +7m.46s., +7m.53s., and +7m.57s.
Melbourne i = +9m.2s. and +14m.44s.
Honolulu e = +31m.14s.
Batavia iN = +15m.55s.
Santa Barbara epPZ = +13m.0s.
Berkeley iZ = +11m.21s. and +13m.0s., eZ = +13m.56s., eE = +20m.27s.
Ukiah esS = +23m.50s.
Pasadena ipPEZ = +13m.5s., isPZ = +14m.18s., ePKP,PKPZ? = +38m.14s.
Vladivostok e = +13m.12s., +14m.7s., +17m.0s., and +21m.5s.
Chiufeng iEZ = +13m.50s., PP = +14m.43s.
Huancayo S = +23m.9s., e = +23m.33s., and +27m.0s.
Calcutta iN = +26m.34s. and +34m.57s.
San Juan e = +27m.32s.
Tashkent i = +32m.7s., e = +34m.56s. and +39m.20s.
Sverdlovsk i = +18m.13s. and +20m.3s.
Tiflis eZ = +20m.38s., eEN = +22m.10s., eN = +30m.56s. and +32m.17s.
Ksara ipPKP = +20m.55s., sPKP = +21m.47s., PP = +22m.13s., pPP = +24m.11s., sPP = +25m.15s., SPP = +33m.51s.
Jena i = +18m.56s.
Prague eZ = +19m.3s., iZ = +19m.8s. and +21m.13s.
Toledo i = +19m.49s., pPZ = +21m.16s., sPZ = +21m.48s., pPPE = +25m.44s., isPSN = +37m.56s., SSN = +42m.59s., eSSN = +46m.10s., SSSN = +49m.48s.

Nov. 15d. 22h. 20m. 57s. Epicentre 54°·0N. 170°·0E. (as on 1925 Sept. 5d.). R.1.

A = −·5789, B = +·1021, C = +·8090 ; δ = +3 ;
D = +·174, E = +·985 ; G = −·797, H = +·140, K = −·588.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
College		23·5	45	e 4 23	−42	8 43	−31	e 11·8	—
Mizusawa	E.	24·5	244	e 5 14	− 1	e 9 40	+ 8	—	—
	N.	24·5	244	e 5 12	− 3	e 9 35	+ 3	—	—
Vladivostok		27·0	262	e 5 41	+ 3	—	—	12·6	21·2
Maebasi		27·6	244	6 1	+17	10 34	+ 9	—	—
Nagano		27·9	245	5 48	+ 2	10 3	−27	—	—
Oiwake		28·0	244	5 49	+ 2	10 27	− 5	—	—
Chiufeng		38·2	272	i 7 17a	0	13 10	+ 1	i 16·2	21·6
Nanking		42·1	261	7 50	+ 1	14 8	0	19·1	31·7
Berkeley	E.	47·7	81	—	—	e 15 25	− 4	—	—
Tinemaha		50·6	79	e 8 55	− 1	—	—	—	—
Semipalatinsk		51·3	306	e 8 23	−38	—	—	—	—
Haiwee	N.	51·4	79	e 9 5	+ 3	—	—	—	—
Santa Barbara	Z.	51·6	83	e 9 5	+ 2	—	—	—	—
Hong Kong		52·2	257	9 7	− 1	16 33	+ 2	—	35·6
Mount Wilson	E.	52·7	82	e 9 9	− 3	—	—	—	—
Pasadena		52·7	82	i 9 8	− 4	e 16 37	− 1	e 26·8	—
Scoresby Sund		55·2	6	—	—	18 6	+54	29·0	—
Sverdlovsk		55·2	322	i 9 42	+12	i 17 30	+18	35·0	36·4
Tucson		58·3	77	e 9 49	− 3	e 17 59	+ 6	27·2	—
Frunse		59·3	302	e 8 59	−61	—	—	—	—
Pulkovo		61·8	339	10 16	− 1	e 18 45	+ 6	33·0	40·8
Andijan		62·0	302	e 10 9	− 9	—	—	e 35·0	—
Tashkent		63·1	305	i 10 24	− 2	i 19 5	+ 9	32·6	40·2
Moscow		63·6	333	e 10 29	0	19 6	+ 4	36·6	41·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Chicago		63·6	56	e 16 33	?	e 18 55	− 7	33·0	—
Florissant		64·5	59	e 10 31	− 4	e 19 1	−13	e 31·4	42·8
St. Louis	E.	64·7	59	e 10 34	− 3	—	—	—	—
Little Rock		66·6	63	e 10 45	− 4	—	—	—	—
Copenhagen		68·8	348	11 4	+ 1	—	—	39·0	—
Weston		70·3	44	i 11 11	− 2	—	—	—	—
Grozny		71·7	321	11 26	+ 5	—	—	45·6	—
Piatigorsk		72·0	323	11 23	0	—	—	—	—
Baku		72·6	317	i 11 28	+ 2	e 21 11	+19	36·0	48·6
Tiflis		73·4	321	i 11 31	0	e 21 7	+ 6	e 34·0	50·2
Jena		73·5	346	e 11 33	+ 1	—	—	—	—
Sotchi		73·6	326	11 37	+ 5	—	—	—	—
Theodosia		73·7	329	11 36	+ 3	—	—	47·0	—
Simferopol		74·2	330	e 11 38	+ 2	—	—	—	—
Sebastopol		74·6	331	11 41	+ 3	—	—	—	—
Yalta		74·6	330	11 38	0	—	—	44·0	—
Erevan		74·9	321	e 11 45	+ 5	—	—	—	—
Vienna	z.	75·4	344	e 11 43	0	—	—	—	—
Stuttgart		76·0	347	e 11 46	0	—	—	e 45·0	—
Hyderabad		76·9	282	11 42	− 9	21 30	−12	35·0	49·0
Basle		77·4	348	e 11 55	+ 1	—	—	—	—
Zurich		77·4	348	e 11 55	+ 1	—	—	—	—
Chur		77·8	347	e 11 57	0	—	—	—	—
Zagreb		77·8	342	e 11 56	− 1	—	—	—	—
Neuchatel		78·0	348	e 11 58	+ 1	—	—	—	—
Ksara		83·7	323	i 12 27a	0	23 6	+12	—	—
Toledo	z.	86·0	356	i 12 38	0	—	—	—	—
San Juan		93·2	52	—	—	e 23 13	[−38]	e 59·6	—

Additional readings :—
College eSSS = +10m.9s.
Chiufeng PP = +8m.50s.
Scoresby Sund +21m.33s.
Sverdlovsk L_q = +28·2m.
Tucson eSS = +22m.15s.
Florissant eE = +10m.33s. and +10m.36s., eN = +10m.43s., eE = +19m.14s., iN = +19m.18s.
Little Rock iEN = +10m.59s.
Simferopol e = +13m.48s.
Long waves were also recorded at Honolulu, Sitka, Butte, Bozeman, Philadelphia, East Machias, Ivigtut, La Paz, De Bilt, Paris, Prague, and Granada.

Nov. 15d. Readings also at 0h. (Sverdlovsk, Tashkent, and Malabar), 1h. (Baku, Grozny, near Tiflis (2), and near Ferndale), 6h. (Tashkent, Frunse, and near Andijan), 10h. (near Tiflis), 12h. (near Kobe and Sumoto), 13h. (Nagoya and near Mizusawa), 14h. (near Nagoya), 19h. (Hastings), 21h. (Mount Wilson, Pasadena, Simferopol, and Yalta).

Nov. 16d. 23h. 30m. 18s. Epicentre 24°·2N. 141°·6E. (as on 1931 July 2d.). R.3.

A = −·7148, B = +·5666, C = +·4099 ; δ = −1 ;
D = +·621, E = +·784 ; G = −·321, H = +·256, K = −·912.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		11·7	340	e 2 40	− 4	—	—	8·3	—
Sumoto	E.	11·7	335	e 2 32	−12	e 6 15	S_g	—	—
	N.	11·7	335	e 2 35	− 9	e 6 52	S_g	—	—
	z.	11·7	335	e 2 43	− 1	e 6 29	S_g	—	—
Kobe		11·9	333	e 2 44	− 3	e 6 4	S*	—	11·6
Toyooka		12·7	334	2 55	− 3	—	—	—	11·0
Husan		15·4	318	e 3 38	+ 4	e 6 30	+ 6	—	—
Keizyo		18·3	320	e 4 8	− 2	e 7 34	+ 3	—	—
Zinsen		18·4	319	e 4 16	+ 5	e 7 28	− 5	—	—
Zi-ka-wei	z.	19·2	296	i 4 23a	+ 2	8 1	+11	—	16·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Vladivostok		20·5	339	e 4 35	0	e 8 24	+ 8	12·8	17·8
Nanking		21·5	297	4 48	+ 3	8 46	+10	i 12·3	—
Manila		21·7	247	i 5 22	+34	9 12	+32	—	—
Chiufeng		26·6	314	i 5 36k	+ 1	i 9 58	−11	—	—
Batavia		45·5	232	—	—	15 19	+22	—	—
Tashkent		61·4	306	e 10 38	+24	e 18 27	− 7	e 30·9	38·8
Kodaikanal	E.	62·3	270	—	—	e 18 42?	− 4	—	—
Bombay		63·6	280	e 10 42?	+13	i 19 11	+ 9	—	—
Tiflis		78·9	311	—	—	e 22 4	0	47·3	—
Ksara		88·7	307	e 13 1	+10	e 23 51	+ 7	—	—

Additional readings :—
Kobe eZ = +4m.51s., eSE = +6m.10s.
Toyooka ePE = +3m.3s.
Chiufeng iSE = +10m.9s.
Tashkent e = +19m.31s., +19m.54s., +22m.7s., +25m.20s., +26m.32s., and +29m.36s.
Ksara ePS = +24m.47s.
Long waves were also recorded at Baku and Sverdlovsk.

Nov. 16d. Readings also at 0h. (La Paz), 1h. (Riverside and Pasadena), 3h. (Mizsawa (2) and near Nagoya (2)), 4h. (Tiflis), 5h. (near Nagoya), 8h. (Almeria, near Kobe, Sumoto, and Nagoya), 9h. (College, Haiwee, Mount Wilson, Pasadena, and Sverdlovsk), 10h. (Baku and near Tiflis), 12h. (Perth), 13h. (Andijan and Frunse), 15h. (near Mizusawa and Nagoya), 16h. (near Kobe, Sumoto, and Nagoya), 17h. (near Balboa Heights), 18h. (Balboa Heights, Hastings, Medan, and near Nagoya), 19h. (near Lick), 21h. (Tiflis).

Nov. 17d. 19h. 53m. 54s. Epicentre 38°·2N. 141°·7E. (as on 1933 May 24d.). R.2.

$A = -\cdot6167$, $B = +\cdot4871$, $C = +\cdot6184$; $\delta = 0$;
$D = +\cdot620$, $E = +\cdot785$; $G = -\cdot485$, $H = +\cdot383$, $K = -\cdot786$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Isinomaki	0·4	308	0 10	+ 4	0 18	+ 8	—
Sendai	0·6	276	0 9k	0	0 20	+ 5	—
Yamagata	1·1	273	0 15	− 1	0 28	0	—
Hukusima	1·1	245	0 16	0	0 31	+ 3	—
Mizusawa	1·1	335	i 0 13k	− 3	i 0 27	− 1	—
Miyako	1·5	9	0 15a	− 6	0 32	− 7	—
Morioka	1·6	344	0 21k	− 2	0 40	− 1	—
Mito	2·0	208	0 30	+ 1	0 56	+ 5	—
Nügata	2·1	263	0 37	P_g	1 7	S_g	—
Utunomiya	2·2	222	0 33	+ 2	1 0	+ 3	—
Tukubasan	2·3	213	0 34	+ 1	1 1	+ 2	—
Kakioka	2·3	212	0 32	− 1	1 0	+ 1	—
Hatinohe	2·4	357	0 29k	− 5	0 57	− 5	—
Tyosi	2·5	195	0 46	P_g	1 8	+ 4	—
Kumagaya	2·8	222	0 43	P*	1 17	+ 5	—
Aomori	2·8	345	0 37	− 3	1 18	S*	—
Maebasi	2·8	229	0 42	+ 2	1 16	+ 4	—
Tokyo	3·0	212	0 38	− 5	1 7	−10	—
Oiwake	3·1	233	0 51	P*	1 23	+ 3	—
Yokohama	3·2	212	0 49	+ 3	—	—	—
Nagano	3·2	241	0 51	P*	1 55	S_g	—
Kohu	3·6	225	0 55	+ 4	1 40	S*	—
Hunatu	3·6	222	0 52	+ 1	1 43	S*	—
Hakodate	3·7	349	1 8	P_g	—	—	—
Numadu	3·8	217	1 9	P_g	2 2	S_g	—
Misima	3·8	216	1 58	S_g	2 49	?	—
Wazima	3·9	259	0 59	+ 3	—	—	—
Toyama	3·9	248	1 4	P*	1 52	S*	—
Urakawa	4·1	11	0 54	− 4	1 36	− 9	—
Hamamatu	4·7	224	1 59	S	(1 59)	− 1	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Gihu	4·8	236	1 11	+ 3	2 13	+10	—	
Sapporo	4·9	357	1 0	−10	—	—	—	
Obihiro	4·9	13	2 29	?	3 24	?	—	
Nagoya	4·9	233	e 1 24	P*	2 21	S*	—	
Kusiro	5·2	22	1 35	P_g	2 30	S*	—	
Hikone	5·3	238	1 19	+ 4	2 21	+ 6	—	
Kameyama	5·4	233	1 56	P_g	2 27	+ 9	—	
Asahigawa	5·6	5	1 21	+ 1	—	—	—	
Osaka	6·1	236	1 50	P_g	2 53	S*	—	
Sverdlovsk	54·2	318	e 9 26	+ 3	—	—	33·1	

Sverdlovsk gives also e = +29m.34s.
Long waves were also recorded at Vladivostok, Tashkent, Baku, and Tiflis.

Nov. 17d. Readings also at 2h. (Mount Wilson, Pasadena, Riverside, Ksara, near Samarkand, and near Apia), 3h. (San Juan), 5h. (Kew, De Bilt, and near Mizusawa), 15h. (Kodaikanal and near San Javier), 19h. (near Branner), 23h. (Hukuoka B).

Nov. 18d. 1h. 48m.23s. Epicentre 42°·8N. 77°·2E. (as on 1928 Dec. 2d.). X.

A = +·1626, B = +·7155, C = +·6794 ; δ = −4 ;
D = +·975, E = −·222 ; G = +·151, H = +·663, K = −·734.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Almata	0·5	331	i 0 16	+ 9	i 0 24	+11	—	0·4
Frunse	1·9	272	0 27	− 1	i 0 59	S_g	—	1·1
Andijan	4·1	242	e 1 3	P*	e 1 56	S*	—	2·3
Tashkent	6·0	258	e 1 33	P*	i 3 3	S_g	i 3·1	3·9
Samarkand	8·3	251	e 1 49	− 9	e 3 43	+12	—	5·1
Baku	20·4	274	—	—	e 8 30	+16	e 12·0	—
Tiflis	23·8	279	e 4 55	−13	—	—	4·6	12·0
Moscow	28·4	310	—	—	e 13 7	?	e 15·1	16·7
Pulkovo	32·9	317	—	—	e 13 45	?	17·6	19·2

Additional readings :—
Frunse iP_g = +29s., iPP = +33s.
Andijan e = +1m.15s. and +1m.30s.
Tashkent e = +1m.42s., i = +2m.6s., +2m.37s., +2m.53s. and +2m.59s.
Samarkand e = +2m.29s.
Tiflis eEN = +5m.9s.
Moscow e = +14m.15s.
Long waves were also recorded at Ksara,. Sverdlovsk, and Copenhagen.

Nov. 18d. 15h. 50m. 15s. Epicentre 41°·0N. 33°·5E. (as on 1936 Sept. 22d.). R.2.

A = +·6293 B = +·4166, C = +·6561 ; δ = +4 ;
D = +·552, E = −·834 ; G = +·547, H = +·362, K = −·755.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Istanbul	3·4	273	0 53	P*	2 21	?	—	—
Yalta	3·5	8	i 0 50	0	i 1 29	− 1	—	1·6
Sebastopol	3·6	0	i 0 51	0	1 31	− 1	—	—
Simferopol	3·9	7	i 0 55	− 1	i 1 39	− 1	—	1·8
Theodosia	4·2	18	i 0 59	− 1	i 1 47	− 1	—	2·4
Sotchi	5·2	59	1 13	− 1	i 2 30	S*	—	—
Bucharest	6·4	305	e 1 29	− 2	3 13	S*	—	—
Ksara	7·4	164	i 1 47k	+ 2	i 3 11	+ 2	—	—
Piatigorsk	7·6	63	1 57	+ 9	e 3 17	+ 3	—	—
Erevan	8·3	88	e 2 7	+ 9	e 4 11	S*	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tiflis		8·5	82	e 2 3	+ 3	e 3 50	+14	e 4·9	6·0
Czernowitz		9·1	326	i 2 6	− 3	3 12	−39	3·8	—
Grozny		9·3	71	e 2 19	+ 8	e 3 27	−29	—	—
Belgrade		10·3	295	e 2 43a	+18	e 4 20	− 1	e 5·8	8·7
Lemberg		11·0	326	e 3 42	?	—	—	—	13·8
Helwan		11·3	190	i 3 15	+36	i 5 25	S*	—	—
Budapest	E.	12·2	307	e 2 59	+ 8	—	—	7·6	12·2
	N.	12·2	307	e 3 11	+20	—	—	7·0	—
Baku		12·4	87	2 58	+ 4	5 29	+16	6·8	10·2
Zagreb		13·6	297	e 3 9	− 1	e 7 10	L	(e 7·2)	9·7
Vienna		14·1	307	e 3 28	+11	e 7 48	?	e 10·2	14·2
Graz		14·3	301	i 3 15	− 4	e 6 52	+56	e 7·8	10·5
Moscow		15·0	9	e 3 23	− 5	e 6 15	0	e 8·2	10·2
Prague		16·1	311	e 3 39	− 4	e 6 45	+ 4	e 9·2	12·2
Padova		16·4	293	e 3 21	−25	8 40	L	(8·7)	—
Florence		16·6	287	e 3 15	−34	e 7 5	+13	—	—
Cheb		17·3	309	e 3 55	− 3	e 7 26	+17	e 9·8	12·4
Jena		18·1	314	e 4 7	− 1	e 7 45	+18	e 9·8	12·0
Stuttgart		18·8	308	e 4 15k	− 1	e 7 48	+ 6	e 9·8	13·8
Pulkovo		18·9	355	i 4 7	−10	7 43	− 1	9·8	12·6
Zurich		18·9	298	e 4 14	− 3	—	—	—	—
Basle		19·6	299	e 4 26	+ 1	—	—	—	—
Strasbourg		19·6	302	i 4 25k	0	e 8 10	+12	e 9·8	—
Neuchatel		19·9	298	e 4 30	+ 1	e 8 23	+19	—	—
Copenhagen		20·1	325	4 30	− 1	8 17	+ 9	10·8	—
Hamburg		20·2	317	i 4 31a	− 1	e 8 18	+ 8	e 11·8	12·8
Upsala		21·3	337	i 4 42	− 1	i 8 42	+10	e 13·8	15·5
De Bilt		22·2	311	e 4 55	+ 2	9 1	+11	e 10·8	13·2
Uccle		22·3	306	4 56	+ 2	9 0	+ 8	e 10·8	—
Barcelona		23·5	283	—	—	e 9 31	+17	—	17·7
Sverdlovsk		23·6	38	i 5 12	+ 6	i 9 27	+11	i 17·6	21·2
Kew		25·3	307	—	—	e 9 53	+ 7	e 16·8	17·4
Bergen		26·0	329	5 32	+ 3	e 10 3	+ 5	—	—
Jersey		26·2	301	e 4 17	?	e 10 7	+ 5	—	18·2
Tashkent		26·8	77	e 5 53	+17	i 10 26	+14	e 14·2	20·0
Stonyhurst		27·1	311	—	—	i 10 25	+ 8	e 17·8	19·4
Edinburgh		28·0	315	e 7 45?	?	e 10 31	− 1	e 15·8	20·8
Toledo	z.	28·4	280	e 5 51	0	—	—	—	—
Granada		28·8	275	e 6 6	+12	—	—	e 18·8	—
Andijan		29·1	78	e 6 3	+ 6	e 10 53	+ 3	—	—
Frunse		30·3	73	e 6 33	+25	—	—	—	—
Agra	E.	38·9	96	e 8 53	PP	i 13 23	+ 3	—	26·3
Bombay		40·1	112	e 5 45?	?	—	—	—	—
Calcutta	N.	49·2	95	—	—	e 16 1	+11	—	29·4
Kodaikanal	E.	49·4	116	—	—	e 14 45?	?	—	—
Colombo		53·4	117	15 25	S	(15 25)	−82	—	36·6
Chiufeng		60·2	61	e 18 24	S	(e 18 24)	+ 5	—	41·4

Additional readings :—
Sotchi e = +1m.21s. and +1m.28s.
Bucharest PE = +1m.45s., PN = +1m.48s., iPSE = +2m.37s., SSN = +3m.29s.
Ksara iSS = +3m.55s., iP_cP = +8m.36s.
Tiflis eE = +2m.29s., eN = +3m.29s., eE = +4m.32s.
Belgrade e = +3m.11s. and eZ = +5m.0s.
Helwan i = +9m.18s.
Budapest eN = +6m.3s., eE = +6m.21s., iN = +6m.31s., iE = +6m.34s.
Stuttgart eEN? = +3m.57s.
Copenhagen +8m.32s.
Hamburg iSE = +8m.31s.
Sverdlovsk iL_q = +12·6m.
Edinburgh i = +10m.36s.
Toledo P_cPZ = +8m.57s., P_cSE = +12m.44s., S_cSE = +16m.31s.
Long waves were also recorded at Paris, Göttingen, Algiers, San Fernando, Rathfarnham Castle, Vladivostok, Tucson, and Hyderabad.

Nov. 18d. 16h. 58m. 58s. Epicentre 40°·3N. 126°·0W. (as on 1936 Oct. 10d.). R.3.

$A = -\cdot4483$, $B = -\cdot6170$, $C = +\cdot6468$; $\delta = +1$;
$D = -\cdot809$, $E = +\cdot588$; $G = -\cdot380$, $H = -\cdot523$, $K = -\cdot763$.

		△	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Ferndale		1·4	79	e 0 12	− 8	i 0 23	−13
San Francisco		3·7	132	i 0 54	+ 1	i 1 34	− 1
Berkeley		3·8	128	i 0 54	0	i 1 39	+ 2
Branner		4·1	132	e 0 59	+ 1	e 1 51	+ 6
Lick		4·5	129	e 1 3	− 1	i 1 58	+ 3
Fresno	N.	6·0	124	e 1 26	+ 1	—	—
Tinemaha		6·8	115	e 1 42	+ 5	i 3 40	S_g
Haiwee	N.	7·5	121	e 1 49	+ 3	—	—
Mount Wilson	Z.	8·8	131	i 2 3	− 2	i 3 43	− 1
Pasadena		8·8	132	i 2 4	− 1	i 3 46	+ 2
Bozeman		12·2	59	—	—	e 5 20	+12

Additional readings :—
Ferndale iSN = +26s.
Berkeley eE = +1m.22s., eZ = +2m.8s.
San Francisco eE =iN = +1m.38s.
Tinemaha eN = +2m.19s.
Mount Wilson eZ = +4m.25s.
Pasadena eE = +4m.26s.
Long waves were also recorded at Ukiah and Tucson.

Nov. 18d. Readings also at 0h. (Tiflis, Perth, and near Santiago (2)), 4h. (Santiago), 8h. (Branner and Lick), 10h. (Tiflis), 13h. (Almeria, near Granada, and Toledo), 14h. (near Nagoya), 15h. (near Santiago), 16h. (Tucson), 17h. (near Sofia), 18h. (Tucson, Bozeman, Ukiah, Lick, Berkeley, Branner, San Francisco, and near Fresno), 19h. (Andijan).

Nov. 19d. 13h. 57m. 5s. Epicentre 35°·5N. 139°·1E. (as on 1935 March 14d.). X.

$A = -\cdot6153$, $B = +\cdot5330$, $C = +\cdot5807$; $\delta = -10$;
$D = +\cdot655$, $E = +\cdot756$; $G = -\cdot439$, $H = +\cdot380$, $K = -\cdot814$.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Kamakura	0·4	117	0 5k	− 1	0 13	+ 3	—	—
Mitaka	0·4	66	0 5	− 1	0 13	+ 3	—	—
Komaba	0·5	72	0 6	− 1	0 15	+ 2	—	—
Tokyo, Cent. Met. Obs.	0·6	71	0 9k	0	0 19	+ 4	—	—
Tokyo, I.U.	0·6	71	0 8k	− 1	0 19	+ 4	—	—
Susaki	0·9	187	0 10a	− 3	0 22	− 1	—	—
Tukubasan	1·1	49	0 15	− 1	0 29	+ 1	—	—
Nagoya	1·8	259	0 24	− 2	0 48	+ 2	—	1·0
Kobe	3·3	257	e 0 52	P*	1 37	S*	—	1·8
Toyooka	3·4	272	0 58	P*	1 44	S_g	—	1·9
Sumoto	3·6	252	e 0 46	− 5	1 47	S_g	—	2·0
Mizusawa	3·9	24	e 0 57	+ 1	i 1 47	+ 7	—	—
Hukuoka B	7·4	257	e 2 13	P*	e 3 37	S*	—	—
Vladivostok	9·4	326	e 2 16	+ 3	(4 13)	+14	4·2	5·2
Sverdlovsk	54·8	320	e 9 35	+ 8	—	—	28·9	—

Additional readings :—
Sumoto ePE = +50s., eZ = +1m.0s., SE = +1m.50s.

Nov. 19d. 21h. 10m. 20s. Epicentre 13°·5N. 90°·8W. N.1.

A = −·0136, B = −·9723, C = +·2334 ; δ = +3 ;
D = −1·000, E = +·014 ; G = −·003, H = −·233, K = −·972.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Oaxaca	N.	6·8	302	1 38	+ 1	—	—	—	—
Merida	N.	7·6	9	1 57	+ 9	—	—	—	—
Tacubaya	N.	10·0	307	2 22	+ 1	—	—	—	—
Balboa Heights		11·9	112	e 3 1	+14	e 5 28	+28	—	—
Guadalajara	N.	14·1	302	3 17	0	—	—	—	—
Port au Prince		18·4	72	e 4 29	+18	e 8 4	+31	e 9·6	11·4
Little Rock	N.	21·3	356	e 4 42	− 1	i 8 36	+ 4	e 10·6	12·2
Columbia		22·3	21	4 54	0	8 52	0	e 11·7	—
San Juan		24·2	74	5 13	+ 1	9 41	+14	12·3	—
St. Louis		25·1	0	e 5 20	− 1	i 9 28	−15	i 12·6	15·7
Florissant		25·3	0	i 5 21	− 2	e 9 28	−18	—	16·8
Tucson		26·2	320	e 5 30	− 1	e 9 58	− 4	i 13·9	—
Georgetown		28·2	23	i 5 50	+ 1	10 28	− 7	—	—
Chicago		28·4	3	e 5 46	− 5	i 10 35	− 3	11·2	—
Loyola		28·5	3	e 5 55	+ 3	i 11 17	+37	—	—
Denver		29·1	337	e 4 18	?	—	—	i 10·5	12·3
Ann Arbor		29·2	11	i 6 4	+ 6	i 10 52	+ 1	i 13·8	16·2
Pennsylvania		29·5	20	i 5 59	− 2	i 10 53	− 3	—	18·6
Madison		29·6	2	i 5 58	− 3	e 10 51	− 7	—	—
Huancayo		29·8	149	6 9a	+ 6	10 59	− 2	—	—
Philadelphia		29·8	25	i 6 3	0	10 49	−12	i 14·0	—
Fordham		31·1	25	i 6 13	− 2	i 11 16	− 5	—	—
Buffalo		31·2	17	i 6 14	− 2	i 11 18	− 5	—	—
Ithaca		31·5	22	i 6 22	+ 4	i 11 24	− 4	—	—
Riverside		31·6	315	e 6 20	+ 1	e 11 24	− 5	—	—
Mount Wilson		32·2	315	i 6 26	+ 2	—	—	—	—
Pasadena		32·3	315	i 6 27a	+ 2	i 11 41	+ 1	e 14·5	—
Haiwee		33·2	318	i 6 33	− 1	e 11 58	+ 4	—	—
Oak Ridge		33·4	27	i 6 36	+ 1	i 11 52	− 5	14·2	—
Santa Barbara		33·5	314	i 6 35	− 1	i 12 4	+ 6	—	—
Tinemaha		34·0	319	e 6 41	+ 1	e 12 7	+ 1	—	—
Ottawa		34·4	19	i 6 43	− 1	i 12 8	− 4	15·7	—
Vermont		34·4	23	i 6 44	0	12 11	− 1	i 21·5	—
Fresno	N.	34·8	317	i 6 50	+ 3	e 12 7	−11	—	—
Lick		36·3	317	e 7 2	+ 2	e 12 47	+ 6	—	—
Bozeman		36·5	336	e 6 59	− 3	12 42	− 2	e 17·8	—
Branner		36·8	316	e 7 7	+ 2	e 12 51	+ 3	—	—
Berkeley		37·1	317	7 7	0	e 12 54	+ 1	—	—
East Machias		37·1	28	e 7 9a	+ 2	i 12 52	− 1	i 20·3	—
San Francisco	N.	37·1	316	e 7 0	− 7	12 54	+ 1	—	—
La Paz		37·4	142	i 7 20a	+10	i 13 15	+18	17·9	19·4
Ukiah		38·4	318	e 7 18	0	e 12 56	−16	e 16·9	—
Ferndale		39·8	319	e 7 37	+ 7	e 13 18	−15	—	—
Seattle		43·1	329	e 7 53	− 5	e 13 45	−37	e 17·7	—
Victoria		44·1	329	7 58	− 8	—	—	—	—
Santiago		50·7	158	8 23	−34	15 39	−32	—	—
Sitka		55·1	333	e 24 40?	?	—	—	—	—
Ivigtut		56·7	23	9 34	− 7	17 24	− 8	27·7	—
La Plata		57·6	148	9 48	+ 1	17 40	− 4	28·9	—
Rio de Janeiro		59·1	127	i 9 59	+ 1	i 18 5	+ 1	i 29·1	—
Honolulu		64·0	288	—	—	19 12	+ 5	e 30·3	—
College		64·1	337	e 10 46	+13	e 18 48	−21	e 33·8	—
Scoresby Sund		70·3	19	11 10	− 3	20 16	− 9	32·7	—
Rathfarnham Castle		76·0	38	i 11 38	− 8	i 21 17	−15	37·6	46·2
Edinburgh		77·5	36	e 11 40?	−15	i 21 37	−11	e 36·7	49·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
San Fernando		77·7	56	e 12 9	+13	21 50	− 1	34·2	—
Bidston		77·9	38	—	—	e 22 10	+17	33·7	46·0
Stonyhurst		78·2	37	i 11 58	0	i 21 40	−16	37·2	45·0
Toledo		78·9	52	e 12 2	0	i 21 59	− 5	36·7	44·8
Jersey		79·0	42	i 12 2	− 1	21 53	−12	36·0	43·1
Oxford		79·2	39	i 11 59	− 5	i 21 57	−10	e 30·8	47·2
Granada		79·7	54	i 12 7	+ 1	e 22 5	− 7	—	—
Kew		79·8	39	i 12 6	− 1	22 2	−12	37·7	47·2
Barcelona		80·1	49	e 22 36	S	(e 22 36)	+19	e 39·5	44·5
Almeria		80·6	55	—	—	e 22 16	− 6	e 31·9	45·1
Bergen		81·3	30	12 18	+ 3	22 21	− 9	e 39·7	—
Paris		82·0	42	e 12 14	− 4	—	—	e 35·7	50·7
Uccle		82·8	40	12 23	+ 1	22 33	−12	e 34·7	51·3
De Bilt		83·0	38	12 21	− 2	22 29	−18	e 38·7	42·9
Besançon		84·6	43	e 13 40	+69	—	—	e 39·7	—
Algiers		85·0	54	e 12 53	+20	e 22 55	−13	i 35·4	44·7
Neuchatel		85·3	43	e 12 34	− 1	—	—	—	—
Hamburg		85·4	36	i 12 36a	+ 1	e 22 56	−16	e 37·7	52·7
Strasbourg		85·5	41	i 12 35a	− 1	i 22 57	−16	e 38·7	53·5
Basle		85·6	42	e 12 37	+ 1	—	—	—	—
Göttingen		86·0	38	i 12 37	− 1	e 23 10	− 8	—	53·0
Copenhagen		86·2	33	12 40	+ 1	23 9	−10	36·7	—
Stuttgart		86·3	41	i 12 41a	+ 1	i 23 9	−11	e 39·7	54·5
Zurich		86·3	42	e 12 33	− 7	—	—	—	—
Chur		87·1	42	e 12 43	− 1	—	—	—	—
Jena		87·1	39	e 12 40	− 4	e 23 4	[−10]	e 35·7	45·2
Upsala		87·3	28	e 12 45	0	23 5	[−10]	41·7	47·1
Cheb		87·9	39	e 12 52	+ 5	e 23 13	[− 6]	e 41·7	54·7
Florence		89·1	45	e 11 40?	−73	e 22 40?	−67	—	—
Padova		89·1	43	e 12 21	−32	22 28	[−59]	e 50·7	—
Prague		89·1	38	e 12 53	0	e 23 46	− 1	e 35·7	55·7
Graz		90·8	42	e 16 52	PP	e 23 32	[− 5]	e 37·7	56·1
Vienna		91·0	40	e 13 2	0	23 17	[−22]	e 43·2	48·2
Zagreb		91·6	42	e 13 5	0	e 23 36	[− 6]	e 40·6	—
Budapest	E.	92·9	40	e 14 10	+59	i 24 10	−13	49·7	50·7
	N.	92·9	40	e 13 40?	+29	—	—	49·7	50·7
Pulkovo		93·0	26	13 9	− 2	23 40	[−10]	38·7	55·5
Belgrade		94·9	42	e 17 12	PP	e 23 53	[− 7]	e 50·1	—
Czernowitz		96·7	37	i 13 15	−13	—	—	47·7	—
Sofia		97·7	43	e 17 40?	PP	—	—	e 59·7	—
Moscow		98·5	36	13 46	+ 9	24 11	[− 7]	e 42·2	58·7
Wellington		102·2	231	e 12 40?	−74	i 24 40?	[+ 4]	e 42·7	50·7
Sebastopol		103·1	37	e 18 45	PP	e 24 37	[− 4]	e 53·7	—
Simferopol		103·2	37	e 18 24	PP	e 24 43	[+ 2]	e 52·4	—
Yalta		103·5	36	e 18 14	PP	e 24 38	[− 5]	36·9	—
Theodosia		103·9	36	e 18 35	PP	e 24 37	[− 8]	48·7	—
Christchurch		104·0	228	14 14a	+12	24 44	[− 1]	48·4	—
Sverdlovsk		105·8	16	e 14 22	+12	24 59	[+ 5]	53·7	66·4
Sotchi		107·3	35	e 18 42	PP	—	—	—	—
Piatigorsk		108·8	34	e 18 52	PP	—	—	58·7	—
Helwan		109·4	52	e 14 30	+ 2	e 26 0	{− 3}	—	65·4
Grozny		110·7	33	e 19 6	PP	—	—	59·2	—
Ksara		110·7	47	e 14 39	+ 5	28 34	PS	53·7	62·7
Vladivostok		111·2	328	e 14 43	+ 7	25 22	[+ 3]	49·4	80·1
Tiflis		111·3	35	e 14 57	+20	e 25 15	[− 4]	e 45·7	61·0
Erevan		112·2	36	e 19 0	PP	—	—	—	—
Cape Town		113·4	121	i 19 33	PP	—	—	e 54·2	60·5
Baku		114·9	33	e 19 38	PP	e 29 33	PS	55·7	68·7
Chiufeng		120·9	337	e 18 49	[+ 1]	25 52	[− 1]	e 54·3	78·5
Frunse		122·0	13	e 19 40	[+50]	—	—	66·2	—
Tashkent		122·2	18	i 20 30	PP	25 52	[− 5]	e 52·8	72·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan		123·6	10	e 18 56	[+ 2]	—	—	65·7	—
Melbourne		125·1	234	i 20 2	PP	i 26 10	[+ 5]	58·4	61·1
Zi-ka-wei	Z.	125·6	326	e 18 40	[−18]	29 8	{+75}	73·9	84·6
Nanking		126·4	329	e 19 12	[+12]	e 31 5	PS	e 59·4	68·8
Adelaide		130·7	236	i 32 10	PS	—	—	56·3	72·7
Hong Kong		136·6	326	19 24	[+ 7]	31 6	SKSP	—	92·3
Manila		137·8	311	19 26	[+ 7]	23 9	PKS	—	—
Agra	E.	137·9	15	19 33	[+14]	—	—	—	87·4
Phu-Lien		141·7	333	e 18 40?	[−44]	e 32 48	SKSP	73·7	—
Bombay		143·8	27	19 40	[+10]	—	—	—	90·3
Calcutta	N.	144·0	2	19 35	[+ 4]	29 7	{−41}	67·1	91·0
Hyderabad		147·3	20	e 19 43	[+ 5]	33 29	SKSP	68·0	83·0
Perth		149·4	230	19 40	[− 1]	—	—	—	—
Kodaikanal	E.	153·6	27	e 19 54	[+ 7]	30 10	{−33}	e 71·5	95·4
Colombo		157·6	26	19 40?	[−11]	—	—	72·0	94·9
Medan		160·5	332	e 20 1	[+ 7]	—	—	e 77·7	—
Batavia		161·2	291	i 19 59	[+ 4]	—	—	e 81·7	—

Additional readings :—
Port au Prince iPP = +4m.44s.
Little Rock ipPN = +4m.53s., iPPN = +5m.13s., isSN = +8m.56s., iP_cPN = +9m.1s., isSSN = +9m.16s.
Columbia i = +4m.58s., iPP = +5m.13s., S = +9m.1s., SS = +9m.30s.
San Juan iPP = +5m.45s., iPPP = +6m.3s., e = +10m.2s.
St. Louis ipPEN = +5m.35s., iPPEN = +5m.46s., iSSEN = +10m.19s., ipPPN = +5m.59s., iP_cPEN = +8m.57s., iSSEN = +9m.53s.
Florissant ipPNZ = +5m.35s., iPPZ = +5m.48s., ipPPZ = +6m.1s., iSPZ = +6m.3s., eSZ = +9m.31s., iZ = +9m.34s., isSZ = +9m.55s.
Tucson iP = +5m.33s., i = +5m.40s., iS = +10m.4s., i = +12m.24s.
Pennsylvania iPP = +6m.54s., iP_cP = +9m.7s., eSS = +13m.37s., iSSS = +14m.18s., e = +17m.17s.
Denver epPN = +4m.27s., ePPN = +4m.35s., eE = +5m.21s. and +6m.32s. eP_cPE = +8m.33s., eN = +9m.28s.
Ann Arbor iPP = +6m.58s., iSS = +12m.28s.
Madison +11m.57s.
Huancayo e = +6m.13s. and +6m.25s., i = +6m.39s., ePP = +7m.15s., iS = +11m.7s.
Philadelphia i = +6m.7s., e = +7m.13s. and +8m.45s., iS = +10m.58s., i = +12m.40s. = SSSS + 0s. and +13m.21s.
Fordham ipP = +6m.32s.
Ithaca iPPN = +7m.6s.
Riverside eS_cSEN = +16m.55s.
Mount Wilson iP_cPZ = +9m.18s.
Pasadena iP_cPZ = +9m.15s., iS_cPEZ = +13m.1s., iS_cSEN = +16m.56s., iPKP,PKPZ = +40m.22s., eZ = +42m.8s., eSKP,PKPZ = +43m.5s.
Haiwee iP_cPZ = +9m.17s.
Oak Ridge iEN = +6m.54s., iE = +10m.32s., iN = +11m.4s., iZ = +11m.17s., iN = +11m.42s., eE = +11m.45s., iN = eZ = +12m.52s.
Santa Barbara iP_cPZ = +9m.21s.
Tinemaha iP_cPE = +9m.20s., iS_cSEN = +17m.9s.
Ottawa PPP = +8m.6s., SSN = +13m.58s. ; T_0 = 21h.10m.24s.
Vermont e = +8m.3s. = PPPP − 4s., iSS = +14m.16s., i = +14m.50s., e = +16m.40s. and +17m.40s.
Fresno eP_cPN = +9m.28s.
Lick ePN = +7m.3s., eSE = +12m.49s.
Bozeman ePP = +8m.27s., eSS = +15m.31s.
Berkeley ePEN = +7m.10s., eSEN = +12m.56s., eZ = +12m.59s.
East Machias iPP = +8m.36s., e = +12m.22s., iSS = +15m.25s., i = +17m.57s.
San Francisco eE = +7m.5s., eE = +13m.25s.
La Paz PP = +8m.49s., SSN = +15m.30s., SSE = +15m.55s.
Ukiah e = +13m.14s., eSSS = +16m.6s.
Ferndale eSN = +13m.39s.
Theodosia e = +24m.37s.
Ivigtut PPP = +13m.16s., SS = +21m.22s., SSS = +24m.19s.
Rio de Janeiro iSS = +21m.59s.
Honolulu e = +29m.10s.
College e = +17m.58s., ePS = +19m.28s., eSS = +23m.22s.
Scoresby Sund +16m.40s. and +25m.10s., SSS = +28m.10s.
Rathfarnham Castle i = +12m.36s., +21m.24s., +24m.55s., SS = +26m.42s., +30m.44s.
Edinburgh i = +22m.3s. and +27m.10s.
San Fernando PP = +14m.52s., PS = +22m.14s., SS = +27m.26s.
Bidston eSS = +27m.10s., eSSS = +30m.40s.

Continued on next page.

Stonyhurst eSS = +26m.38s., iSSS = +30m.26s.
Toledo iSKSN = +22m.14s., iS$_c$SEN = +22m.26s., iPPSN = +22m.56s., GN = +32m.50s., SKKSN = +38m.4s.
Jersey PP = +14m.50s., PPP = +15m.16s., i = +23m.11s., +26m.22s., +27m.56s., +30m.19s. =SSS +7s. and +33m.52s.
Kew iPPEZ = +14m.59s., iE = +23m.58s., SSEN = +27m.19s., eSSSEN = +30m.57s.
Barcelona eS = +27m.7s. =SS −7s.
Bergen e = +33m.40s.?
Uccle ePPE = +15m.41s., iE = +24m.41s., SSE = +27m.46s., SSSE = +31m.10s.
De Bilt ePPZ = +15m.35s.
Algiers ePS = +23m.55s.
Neuchatel ePP = +15m.59s.
Hamburg ePPZ = +16m.9s., iSE =eSN = +23m.2s., eSSZ = +29m.0s., eSSSE = +32m.40s.?
Strasbourg ePPZ = +15m.56s., ePS = +23m.53s., eSS = +29m.8s., eSSS = +31m.40s.? eSSSS = +35m.10s.
Göttingen eSSEN = +28m.58s.
Copenhagen PP = +15m.57s., and +16m.16s., e = +22m.59s., SS = +28m.46s., SSS = +32m.58s.
Stuttgart ePPE = +16m.3s., ePPS = +24m.34s., e = +25m.45s., eSS = +29m.10s.
Zurich ePP = +15m.57s.
Jena eE = +24m.20s., e = +29m.0s. =SS +2s.
Upsala iSE = +23m.20s., SS = +28m.58s.
Prague ePP = +16m.30s., eSKS = +23m.18s., ePS = +24m.58s., eSS = +29m.34s., eSSS = +33m.34s.
Vienna PP = +16m.39s.
Zagreb ePP = +17m.4s.
Budapest eN = +17m.5s., iN = +17m.28s., eN = +19m.10s.
Pulkovo PP = +16m.53s., PPP = +18m.37s., PPS = +25m.37s., SS = +30m.22s., SSS = +34m.58s.
Belgrade e = +17m.29s. and +19m.12s.
Czernowitz i = +20m.8s.
Moscow PP = +17m.41s., PS = +26m.33s., SS = +32m.10s.
Christchurch PPZ = +18m.19s., PS = +27m.29s., PPS = +28m.14s., eEN = +29m.29s., SS = +33m.36s., SSSE = +37m.39s., GEN = +42m.31s.
Sverdlovsk iPP = +18m.42s., SKKS = +25m.25s., iSS = +34m.52s.
Helwan PP = +18m.57s., SKS = +25m.5s., PS = +28m.15s.
Ksara iPP = +19m.4s., SS = +34m.42s.
Vladivostok PP = +19m.15s., PPP = +21m.48s., SKKS = +26m.21s., SS = +34m.46s.
Tiflis PP = +19m.11s., ePPZ = +19m.27s., eSKKSN = +26m.13s., ePSZ = +28m.41s., eSSE = +34m.59s.
Cape Town PS? = +29m.13s., eSS?E = +35m.8s., eSS?N = +35m.19s.
Chiufeng PP = +20m.20s., PS = +29m.53s., SSN = +36m.48s.
Tashkent SKKS = +27m.8s., ePS = +30m.1s., eSS = +42m.16s., SSS = +48m.58s.
Melbourne SS = +38m.8s., e = +42m.30s.
Zi-ka-wei iZ = +19m.4s., +20m.52s. =PP +4s., +21m.6s.
Nanking e = +20m.58s.,PKP = +22m.22s.,ePP = +23m.58s.,SPSN = +26m.12s., PSE = +33m.16s., SS = +43m.20s., eE = +55m.20s.
Adelaide e = +33m.10s. and +43m.54s.
Hong Kong ? = +22m.12s., PP? = +22m.58s., PPP = +26m.44s., SS = +35m.55s.
Agra SKPE = +22m.58s., SSSE = +45m.33s.
Phu-Lien e = +21m.48s.
Bombay eE = +19m.52s., PPPN = +22m.51s., SKP = +23m.14s., SSS = +48m.4s.
Calcutta SKP = +23m.5s., PPS = +35m.0s., SSSN = +46m.15s.
Kodaikanal PPE = +23m.29s., iSKPE = +23m.28s., PPPE = +26m.45s., iPSKS = +33m.57s., iPPE = +36m.50s., iSSE = +43m.15s., SSSE = +48m.43s.
Medan 1 = +21m.0s.
Batavia ipPZ? = +20m.43s.
Long waves were also recorded at Sydney, Tortosa, Bucharest, and Arapuni.

Nov. 19d. 21h. 44m. 19s. Epicentre 13°·5N. 90°·8E. (as at 21h. 10m.). X.

		△	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Oaxaca	N.	6·8	302	1 35	− 2	—	—
Merida	N.	7·6	9	1 56	+ 8	—	—
Tacubaya	N.	10·0	307	2 22	+ 1	—	—
Little Rock	N.	21·3	356	e 4 38	− 5	e 8 33	+ 1
St. Louis	N.	25·1	0	e 5 17	− 4	—	—
Florissant	N.	25·3	0	e 5 25	+ 2	—	—

Little Rock gives also ePPN = +5m.7s.

Nov. 19d. Readings also at 0h. (Christchurch), 6h. (near Santiago), 11h. (Sebastopol, Simferopol, and Yalta), 13h. (Tacubaya, Haiwee, Pasadena, Riverside, Tinemaha, Mount Wilson, Tucson, Bozeman, Scoresby Sund, Sverdlovsk, near Mizusawa, and Nagoya), 14h. (Ksara), 17h. (near Mizuwawa), 18h. (near Medan and near Santiago), 20h. (Santiago (2)), 22h. (Keizyo).

Nov. 20d. Readings at 0h. (La Paz (2), Little Rock, San Juan, Tucson, and Merida), 1h. (Tashkent and Sverdlovsk), 3h. (near Manila), 4h. (Sebastopol and Yalta), 6h. (Almeria), 12h. (Mizusawa and near Santiago), 15h. (Andijan), 17h. (near Branner), 19h. (Almeria and Mizusawa), 20h. (near Santiago (2)), 23h. (Branner).

Nov. 21d. 21h. 48m. 7s. Epicentre 38°·2N. 141°·7E. (as on 17d.). R.1.

The Japanese stations give 38°·0N. 141°·6E.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Isinomaki	0·4	308	0 7	+ 1	0 20	+10	—	—
Sendai	0·6	276	0 12k	+ 3	0 23	+ 8	—	—
Hukusima	1·1	245	0 14k	− 2	0 27	− 1	—	—
Mizusawa	1·1	335	i 0 19k	+ 3	i 0 36	+ 8	—	—
Yamagata	1·1	273	0 16	0	0 35	+ 7	—	—
Aidu	1·4	243	0 42	+22	1 1	+25	—	—
Onahama	1·4	207	0 32a	+12	0 46	+10	—	—
Miyako	1·5	9	0 22a	+ 1	0 40	+ 1	—	—
Morioka	1·6	344	0 25k	+ 2	0 47	S_g	—	—
Akita	2·0	320	0 32	P*	1 0	S*	—	—
Mito	2·0	208	0 25	− 4	0 47	− 4	—	—
Utunomiya	2·2	222	0 30	− 1	0 55	− 2	—	—
Kakioka	2·3	212	0 28k	− 5	0 53	− 6	—	—
Tukubasan	2·3	213	0 29	− 4	0 56	− 3	—	—
Hatinohe	2·4	357	0 35k	+ 1	1 7	S*	—	—
Tyosi	2·5	195	0 38	+ 2	0 56	− 8	—	—
Aomori	2·8	345	0 42	+ 2	1 27	S_g	—	—
Kumagaya	2·8	222	0 39	− 1	1 11	− 1	—	—
Maebasi	2·8	229	0 39	− 1	1 12	0	—	—
Takada	2·9	248	0 43k	+ 2	1 21	S*	—	—
Tokyo	3·0	212	0 44	+ 1	1 12	− 5	—	—
Oiwake	3·1	233	0 44	0	1 17	− 3	—	—
Katuura	3·2	200	0 47	+ 1	1 20	− 2	—	—
Nagano	3·2	241	0 47a	+ 1	1 26	+ 4	—	—
Yokohama	3·2	212	0 46	0	1 17	− 5	—	—
Hunatu	3·6	222	0 51	0	1 33	+ 1	—	—
Kohu	3·6	225	0 52	+ 1	1 38	+ 6	—	—
Mera	3·6	204	0 51	0	1 50	S_g	—	—
Hakodate	3·7	349	1 9	P_g	2 6	S_g	—	—
Misima	3·8	216	0 51	− 3	1 56	S_g	—	—
Numadu	3·8	217	0 55	+ 1	1 36	− 1	—	—
Ito	3·9	214	1 3	P*	1 47	+ 7	—	—
Toyama	3·9	248	1 1	P*	1 41	+ 1	—	—
Wazima	3·9	259	0 56	0	1 58	S*	—	—
Husiki	4·0	249	1 6	P*	2 35	?	—	—
Iida	4·1	231	1 4	P*	1 48	+ 3	—	—
Urakawa	4·1	11	1 9	P*	1 44	− 1	—	—
Takayama	4·1	241	1 0	+ 2	—	—	—	—
Muroran	4·2	352	1 10	P*	1 59	S*	—	—
Omaesaki	4·6	219	1 13	P*	2 18	S*	—	—
Gihu	4·8	236	1 10k	+ 2	2 10	+ 7	—	—
Nagoya	4·9	233	0 10	−60	2 3	− 2	—	2·5
Obihiro	4·9	13	1 32	P_g	2 34	S_g	—	—
Sapporo	4·9	357	1 33	P_g	2 8	+ 3	—	—
Ibukisan	5·1	238	1 9	− 4	2 9	− 1	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kusiro		5·2	22	0 58	−16	1 51	−22	—	—
Hikone		5·3	238	1 19	+ 4	2 31	S*	—	—
Kameyama		5·4	233	1 16	− 1	2 36	S*	—	—
Tu		5·4	232	1 33	P*	2 31	S*	—	—
Asahigawa		5·6	5	1 39	P*	2 31	+ 8	—	—
Kyoto		5·7	238	1 22	+ 1	2 39	S*	—	—
Nemuro		5·9	29	1 13	−11	2 22	− 9	—	—
Yagi		6·0	234	1 27	+ 2	—	—	—	—
Osaka		6·1	236	1 47	P*	2 55	S*	—	—
Osaka B		6·1	236	1 23	− 4	3 0	S*	—	—
Toyooka		6·1	247	1 27	0	2 40	+ 4	—	3·5
Haboro		6·2	0	1 34	+ 6	—	—	—	—
Kobe		6·3	239	e 1 43	P*	e 2 54	+13	—	4·2
Wakayama		6·6	235	1 28	− 6	3 9	S*	—	—
Sumoto		6·7	237	e 1 34	− 1	3 16	S*	—	3·7
Siomisaki		6·8	227	1 38	+ 1	—	—	—	—
Hamada		8·4	250	2 20	+21	4 4	S*	—	—
Vladivostok		8·9	307	e 1 58	− 8	e 4 59	S_g	5·1	6·4
Hukuoka B		10·2	247	e 2 2	−22	e 3 8	?	—	—
Husan		10·6	257	(e 2 33)	+ 4	e 2 33	P	—	—
Zi-ka-wei	z.	18·0	253	e 4 5	− 2	7 55	+30	—	12·3
Chiufeng		19·9	285	i 4 22	− 7	8 10	+ 6	e 9·8	12·8
Tashkent		54·1	298	—	—	e 16 41	−16	27·0	33·3
Sverdlovsk		54·2	318	i 9 34	+11	17 18	+20	25·9	32·7
Tiflis		70·1	307	11 5	− 6	e 21 10	+48	e 35·9	45·0
Tinemaha	E.	74·7	55	e 11 38	− 1	—	—	—	—
Pasadena	z.	76·5	58	e 11 54	+ 5	—	—	—	—
Mount Wilson	z.	76·6	58	e 11 51	+ 2	—	—	—	—
Ksara		81·6	304	e 11 49	−27	e 21 51	−42	42·9	49·9

Additional readings :—
Kobe eZ = +1m.50s., eSE = +2m.57s.
Sumoto eZ = +2m.5s.
Vladivostok e = +3m.13s.
Tashkent e = +21m.9s.
Tiflis eE = +30m.24s.
Long waves were also recorded at Hong Kong, Baku, Copenhagen, Kew, De Bilt, Paris, and Strasbourg.

Nov. 21d. Readings also at 0h. (Andijan and Frunse), 1h. (Jena, Padova, Strasbourg, Ravensburg, Stuttgart, Basle, Chur, and Zurich), 2h. (New Plymouth), 3h. (Almata, Andijan, Frunse, Semipalatinsk), Sverdlovsk, Tashkent, and Tiflis), 4h. (New Plymouth and Wellington), 5h. (Jersey), 6h. (Santiago and near Sumoto), 7h. (Santiago, La Paz, and La Plata), 9h. (Andijan and near Santiago), 10h. (Oaxaca, Tacubaya, and near Santiago), 12h. (near Samarkand), 18h. (near Balboa Heights), 23h. (Berkeley, Branner, and Lick).

Nov. 22d. 14h. 44m. 40s. Epicentre 30°·2S. 179°·0W. (as on 1932 Oct. 20d.). R.3.

$A = -·8641$, $B = -·0151$, $C = -·5030$; $\delta = -9$;
$D = -·017$, $E = +1·000$; $G = +·503$, $H = +·009$, $K = -·864$.

A depth of focus of 0·090 has been applied.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni	−0·6	9·0	208	e 1 20?	−39	—	—	3·3	—
New Plymouth	−1·2	10·6	211	2 13	0	3 31	−28	i 4·2	—
Wellington	−1·6	12·2	202	2 15	−14	3 55	−33	5·3	—
Christchurch	−2·5	14·9	204	2 38?	−16	4 59	−14	—	—
Riverview	−4·5	25·5	254	i 4 40a	0	e 9 48	+82	e 11·8	14·3

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Sydney		−4·5	25·5	254	e 4 40	0	—	—	12·3	15·3
Melbourne		−5·6	30·6	245	5 20	0	10 40	SSSS	14·3	16·1
Adelaide		−6·1	35·8	252	e 6 9	+ 7	e 11 40	+41	i 14·7	22·9
Perth		−8·6	55·0	250	21 50	?	—	—	—	—
Batavia		−9·6	73·2	274	i 10 26	− 3	20 22	ScS	—	—
Santa Barbara	N.	−10·4	85·4	45	e 12 0	+20	—	—	—	—
Vladivostok		−10·5	86·0	326	—	—	e 22 24	+58	46·5	—
Pasadena		−10·5	86·2	46	i 11 41a	− 3	(e 22 8)	+40	e 22·1	—
Mount Wilson	Z.	−10·5	86·3	46	i 11 42	− 3	—	—	—	—
Riverside		−10·5	86·6	46	e 11 43	− 4	—	—	—	—
Haiwee	N.	−10·6	87·6	45	e 11 52	0	—	—	—	—
Tinemaha		−10·6	88·1	44	e 11 50	− 5	—	—	—	—
Tucson		−10·7	89·9	50	e 11 54	−10	e 22 53	+46	—	—
Huancayo		−10·8	95·4	107	e 12 27	− 4	e 22 55	− 9	e 42·6	—
La Paz	N.	−10·9	98·7	116	12 46	− 1	i 23 16	−19	43·3	54·2
Kodaikanal	E.	—	106·8	272	e 18 20?	?	—	—	—	—
Sverdlovsk		—	131·3	321	e 18 25	[−44]	—	—	38·3	41·6
Grozny		—	142·3	303	e 18 44	[−41]	—	—	—	—
Tiflis		—	143·2	300	i 18 35	[−53]	—	—	e 74·3	84·5
Erevan		—	143·5	298	e 18 24	[−65]	—	—	—	—
Sotchi		—	146·7	305	e 18 52	[−45]	—	—	—	—
Theodosia		—	149·3	308	e 18 50	[−51]	—	—	—	—
Simferopol		—	150·2	309	e 21 22	?	—	—	—	—
Ksara		—	150·3	285	i 18 47a	[−55]	—	—	—	81·3
Yalta		—	150·3	308	e 18 57	[−45]	—	—	—	—
Sebastopol		—	150·7	310	e 18 57	[−46]	—	—	—	—
Vienna	Z.	—	158·5	331	e 18 57	[−55]	—	—	—	—
Granada		—	172·1	28	e 20 35	[+30]	—	—	—	—

Additional readings :—
Christchurch eZ = +7m.0s.
Vladivostok e = +38m.9s.
Huancayo e = +18m.24s., S = +23m.2s., e = +29m.44s., eSS = +29m.50s., e = +30m.14s.
Sverdlovsk i = +21m.50s., e = +34m.10s.
Tiflis eE = +22m.28s. = PP −7s. and +50m.44s.?
Ksara ePP = +22m.35s., eSKSP = +32m.51s.
Granada PP = +24m.51s.
Long waves were also recorded at Chiufeng, Tashkent, Baku, Pulkovo, Strasbourg, Stuttgart, Paris, San Fernando, Oak Ridge, and Rio de Janeiro.

Nov. 22d. 18h. 19m. 20s. Epicentre 13°·5N. 90°·8W. (as on 19d.). R.1.

A = −·0136, B = −·9723, C = +·2334 ; δ = +3 ;
D = −1·000, E = +·014 ; G = −·003, H = −·233, K = −·972.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Oaxaca	N.	6·8	302	1 58	P*	—	—	—	—
Puebla	N.	9·0	309	2 15	+ 8	—	—	—	—
Tacubaya	N.	10·0	307	2 22?	+ 1	—	—	—	—
Balboa Heights		11·9	112	2 40?	− 7	—	—	—	—
Port au Prince		18·4	72	e 4 20	+ 9	e 7 57	+24	e 9·4	10·9
Little Rock		21·3	356	i 4 43	0	i 8 27	− 5	i 10·5	13·2
Columbia		22·3	74	4 55	+ 1	e 8 48	− 4	e 11·9	—
San Juan		24·2	74	e 5 11	− 1	9 37	+10	e 12·3	—
Florissant		25·3	0	i 5 22	− 1	e 9 39	− 7	e 15·2	16·7
Tucson		26·2	320	e 5 33	+ 2	e 10 0	− 2	e 12·6	—
Georgetown		28·2	23	e 5 46	− 3	e 10 24	−11	—	—
Chicago		28·4	3	5 49	− 2	10 30	− 8	e 13·1	—
Ann Arbor		29·2	11	e 6 4	+ 6	e 10 52	+ 1	i 13·6	14·4
Pennsylvania		29·5	20	—	—	e 10 49	− 7	e 17·3	18·7
Madison		29·6	2	e 5 0	−61	e 10 15	−43	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Philadelphia		29·8	25	i 6 2	− 1	e 10 46	−15	i 14·2	—
Huancayo		29·8	149	i 6 7	+ 4	i 11 2	+ 1	—	—
Fordham		31·1	25	i 6 13	− 2	i 11 17	− 4	i 15·4	—
Buffalo		31·2	17	i 6 13	− 3	i 11 9	−14	—	—
Ithaca		31·5	22	e 6 12	− 6	i 11 24	− 4	e 14·9	—
Riverside		31·6	315	e 6 18	− 1	e 11 25	− 4	—	—
Mount Wilson		32·2	315	i 6 25a	+ 1	i 11 43	+ 5	—	—
Pasadena		32·3	315	i 6 25a	0	i 11 42	+ 2	e 15·3	—
Haiwee	N.	33·2	318	e 6 35	+ 1	—	—	—	—
Oak Ridge		33·4	27	i 6 34	− 1	i 11 53	− 4	e 14·7	—
Weston		33·4	27	i 6 33	− 2	e 11 50	− 7	e 15·8	18·4
Santa Barbara	Z.	33·5	314	—	—	e 11 1	−57	—	—
Tinemaha		34·0	319	e 6 43	+ 3	e 11 47	−19	—	—
Ottawa		34·4	19	6 42	− 2	12 6	− 6	16·2	—
Vermont		34·4	23	i 6 43	− 1	i 12 10	− 2	18·2	—
Fresno	N.	34·8	317	e 6 48	+ 1	—	—	—	—
Lick	E.	36·3	317	e 7 3	+ 3	e 12 47	+ 6	—	—
	N.	36·3	317	e 7 1	+ 1	e 12 43	+ 2	—	—
Bozeman		36·5	336	e 7 2	0	e 12 41	− 3	e 19·6	—
Branner		36·8	316	e 7 3	− 2	—	—	—	—
East Machias		37·1	28	e 7 2	− 5	e 12 45	− 8	e 17·8	—
Berkeley		37·1	317	e 7 6	− 1	i 12 54	+ 1	—	—
San Francisco	N.	37·1	316	e 7 3	− 4	e 12 58	+ 5	—	—
La Paz		37·4	142	i 7 11a	+ 1	i 13 11	+14	i 18·4	23·2
Butte		37·4	337	7 8	− 2	—	—	e 18·1	—
Ukiah		38·4	318	e 7 14	− 4	e 13 14	+ 2	e 18·3	—
Seattle		43·1	329	—	—	e 13 34	−48	e 17·1	—
Victoria		44·1	329	8 2	− 4	—	—	—	—
Ivigtut		56·7	23	9 38	− 3	17 26	− 6	28·7	—
La Plata		57·6	148	9 48	+ 1	17 41	− 3	28·7	—
Rio de Janeiro		59·1	127	i 9 58	0	i 18 3	− 1	i 29·6	—
Honolulu		64·0	288	—	—	e 25 9	SSS	e 29·9	—
College		64·1	337	e 11 22	+49	—	—	e 32·7	—
Scoresby Sund		70·3	19	11 22	+ 9	20 26	+ 1	34·7	—
Rathfarnham Castle		76·0	38	—	—	e 29 16	?	—	45·7
Edinburgh		77·5	36	—	—	i 21 56	+ 8	—	49·2
San Fernando		77·7	56	e 11 57	+ 1	e 23 1	+70	37·7	—
Bidston		77·9	38	—	—	e 30 52	SSS	e 31·7	47·3
Stonyhurst		78·2	37	—	—	e 21 44	−12	39·2	44·8
Toledo		78·9	52	e 12 0	− 2	e 21 54	−10	—	44·7
Jersey		79·0	42	—	—	e 32 43	SSSS	37·1	—
Granada		79·7	54	e 12 5	− 1	e 22 2	−10	—	—
Kew		79·8	39	i 12 4a	− 3	e 22 51	−23	e 31·7	48·4
Paris		82·0	42	e 12 16	− 2	—	—	32·7	45·7
Uccle		82·8	40	e 12 19	− 3	e 22 31	−14	e 34·7	—
De Bilt		83·0	40	12 20	− 3	22 28	−19	e 38·7	50·8
Neuchatel		85·3	43	e 13 32	+57	—	—	—	—
Hamburg		85·4	36	e 12 47	+12	—	—	e 39·7	52·7
Strasbourg		85·5	41	e 12 33	− 3	e 22 58	[− 5]	e 35·7	—
Copenhagen		86·2	33	12 40	+ 1	23 10	[+ 2]	40·7	—
Zurich		86·3	42	e 13 0	+20	—	—	—	—
Stuttgart		86·3	41	e 12 37	− 3	e 23 21	+ 1	e 41·7	53·7
Cheb		87·9	39	—	—	e 23 40?	+14	e 44·7	—
Prague		89·1	38	e 12 58	+ 5	e 23 46	− 1	e 42·7	55·7
Vienna	Z.	91·0	40	e 13 10?	+ 8	—	—	—	—
Zagreb		91·6	42	e 13 39	+34	e 23 18	[−24]	—	45·7
Pulkovo		93·0	26	16 57	PP	25 40	+76	44·7	55·7
Moscow		98·5	36	—	—	24 16	[− 2]	47·2	58·6
Sebastopol		103·1	37	e 19 19	PP	—	—	—	—
Yalta		103·5	36	e 18 40	PP	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Theodosia		103·9	36	18 35	PP	—	—	—	—
Christchurch		104·0	228	24 34	S	(24 34)	[−11]	47·9	—
Sverdlovsk		105·8	16	18 50	PP	25 1	[+ 7]	45·7	60·1
Helwan		109·4	52	18 10	[− 6]	e 28 13	PS	—	—
Ksara		110·7	47	e 14 44	+10	i 28 43	PS	—	—
Grozny		110·7	33	e 20 28	PPP	—	—	65·2	—
Vladivostok		111·2	328	19 20	PP	25 12	[− 7]	e 55·0	78·6
Tiflis		111·3	3	19 9a	PP	e 25 15	[− 4]	50·7	72·7
Capetown		113·4	121	i 19 29	PP	29 10	PS	e 56·1	66·6
Baku		114·9	33	19 36	PP	29 30	PS	51·7	69·2
Chiufeng		120·9	337	18 51k	[+ 3]	25 49	[− 4]	e 54·8	77·8
Frunse		122·0	13	e 19 2	[+12]	—	—	60·2	—
Tashkent		122·2	18	e 18 43	[− 8]	e 27 20	{−11}	e 68·5	74·2
Andijan		123·6	10	e 18 39	[−15]	—	—	—	—
Melbourne		125·1	234	e 21 1	PP	e 26 0	[− 5]	58·7	63·1
Hong Kong		136·6	326	22 11	PP	(26 47)	[+12]	—	84·2
Agra	E.	137·9	15	e 19 25	[+ 6]	22 55	PP	—	—
Phu-Lien		141·7	333	21 40?	PP	—	—	73·7	—
Bombay		143·8	27	19 32	[+ 2]	—	—	—	93·4
Calcutta	N.	144·0	2	19 33	[+ 2]	—	—	—	90·8
Perth		149·4	230	21 40?	?	—	—	—	—
Kodaikanal	E.	153·6	27	e 20 40?	{+26}	—	—	—	—
Colombo		157·6	26	17 38	?	—	—	—	98·2
Medan		160·5	332	e 19 59	[+ 5]	—	—	e 96·7	—
Batavia	Z.	161·2	291	i 20 0	[+ 5]	—	—	—	—

Additional readings :—
Port au Prince iPP = +4m.37s.
Little Rock ipPN = +4m.58s., iPPEN = +5m.10s., isSEN = +9m.3s., iSSEN = +9m.17s., isSSEN = +9m.48s.
Columbia e = +6m.45s., S = +8m.58s., SS = +9m.56s.
San Juan PP = +5m.43s., PPP = +6m.12s.
Florissant ipPNZ = +5m.36s., iZ = +5m.44s., iEZ = +5m.54s., iZ = +9m.49s., isSNZ = +10m.4s., iSSNZ = +10m.43s.
Tucson iS = +10m.6s.
Chicago e = +10m.58s.
Ann Arbor ePP = +7m.10s., eSS = +12m.34s.
Pennsylvania e = +11m.38s. and +13m.28s.
Philadelphia i = +6m.15s., iS = +10m.52s., i = +13m.21s.
Huancayo e = +6m.34s., PP = +7m.9s., i = +11m.13s., SS = +12m.44s.
Fordham iPP = +7m.10s.
Buffalo iPP = +7m.25s., i = +12m.7s.
Ithaca iPPN = +7m.0s., eE = +7m.14s., iE = +13m.22s.
Oak Ridge iPPPE = +7m.53s.
Ottawa PPP = +8m.3s., SS = +14m.4s. ; T_0 = 18h.19m.24s.
Vermont ePP = +7m.42s., e = +12m.26s., eSS = +14m.1s., e = +14m.41s.
East Machias e = +7m.25s., ePP = +8m.23s., e = +8m.45s. and +9m.22s., S = +12m.56s.
Berkeley e = +12m.46s , iSZ = +12m.57s.
La Paz iPPN = +8m.39s., iN = +13m.45s., iSSN = +15m.35s., iN = +17m.0s.
Butte ePP = +8m.22s.
Ivigtut +21m.52s. and +24m.20s.
Scoresby Sund +25m.22s. and +28m.40s.
Rathfarnham Castle e = +30m.0s., i = +31m.1s.
Toledo PPN = +14m.51s., S_cSE = +22m.21s., PPSEN = +22m.52s., PKKPE = +30m.51s.
Kew eE = +23m.57s., eSSSN = +31m.0s.
Uccle iE = +24m.37s., eSSE = +27m.40s.? eSSSE = +31m.40s.?
Strasbourg ePS = +23m.50s., eSS = +28m.40s.? eSSS = +32m.40s.?
Copenhagen +28m.46s.
Stuttgart ePP = +16m.16s., eSKS = +23m.5s.
Prague eSKS = +23m.10s., eSS = +29m.22s., eSSS = +33m.28s.
Pulkovo SS = +30m.34s.
Moscow PS = +26m.7s., PPS = +26m.39s.
Christchurch iS = +33m.36s., GN = +43m.20s.
Sverdlovsk SS = +34m.10s., SSS = +38m.34s.
Ksara ePP = +19m.15s., iPPS = +29m.43s., eSS = +35m.5s.
Vladivostok PPP = +22m.2s., SKKS = +26m.17s., PS = +28m.48s.
Tiflis ePSE = +28m.53s., ePPSE = +34m.10s., eN = +35m.11s.
Cape Town eSS = +35m.12s.

Continued on next page.

Baku PPS = +31m.2s., SS = +36m.40s.
Chiufeng iPPNZ = +20m.20s , SKKS?N = +27m.17s.
Tashkent iPKP = +19m.24s., PP = +20m.40s., eS = +28m.20s., PPS = +31m.58s., SSS = +42m.22s.
Melbourne e = +38m.7s.
Hong Kong ? = +22m.57s., PPP? = +31m.50s., S? = +35m.44s. ; SKS is given as PP?
Bombay PPN = +22m.47s., SKPN = +23m.9s., SSS?E = +47m.55s.
Calcutta PPN = +22m.54s., PPSN = +35m.54s., SSSN = +47m.40s.
Long waves were also recorded at Sitka, Dakar, Algiers, Almeria, Graz, Göttingen, Jena, Upsala, Belgrade, Hyderabad, Zi-ka-wei, Adelaide, Sydney, Wellington, and Apia.

Nov. 22d. Readings also at 2h. (Berkeley, Lick, near Fresno, Branner, and near Santiago), 9h. (near Neuchatel), 10h. (Bozeman and Sumoto), 12h. (Mount Wilson, Pasadena, near Santiago, and near Samarkand), 15h. (near Malabar), 16h. (Mount Wilson, Pasadena, Riverside, Santa Barbara, Tinemaha, Little Rock, Tucson, Oaxaca, Puebla, and Tacubaya), 17h. (Tiflis, Takaka, near Christchurch, New Plymouth, and Wellington), 18h. (Mount Wilson (2), Pasadena (2), Tiflis, near La Paz, and near Malabar (2)), 21h. (Bergen and near Hukuoka B).

Nov. 23d. 0h. 36m. 28s. Epicentre 8°·0N. 82°·0W. (as on 1934 July 18d.). X.

$A = +\cdot1378$, $B = -\cdot9806$, $C = +\cdot1392$; $\delta = -6$;
$D = -\cdot990$, $E = -\cdot139$; $G = +\cdot019$, $H = -\cdot138$, $K = -\cdot990$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s	m. s.	s.	m.	m.
Balboa Heights		2·6	67	i 0 44	P_g	i 1 21	S_g	—	1·8
San Juan		18·6	54	e 3 58	−16	e 7 36	− 2	e 11·1	—
Huancayo		21·1	162	e 4 38	− 3	6 34	?	e 11·2	—
La Paz		28·1	150	5 56	+ 8	—	—	15·5	19·2
Philadelphia		32·5	10	—	—	e 11 19	−24	e 15·4	—
Mount Wilson	z.	42·3	314	e 7 51	0	—	—	—	—
Pasadena	z.	42·3	313	e 7 52	+ 1	i 9 32	?	—	—
Tinemaha	z.	43·9	317	—	—	i 9 36	?	—	—

Additional readings :—
San Juan P = +4m.6s., e = +7m.7s. and +8m.6s.
Huancayo P = +4m.52s., e = +5m.2s., iPP = +5m.24s., eSS = +9m.1s., S = +9m.12s , e = +9m.41s.
Long waves were also recorded at Rio de Janeiro and Tucson.

Nov. 23d. 1h. 30m. 16s. Epicentre 30°·5N. 86°·9E. (as on 1935 Jan. 6d.). X.

$A = +\cdot0465$, $B = +\cdot8604$, $C = +\cdot5075$; $\delta = +1$;
$D = +\cdot999$, $E = -\cdot054$; $G = +\cdot027$, $H = +\cdot507$, $K = -\cdot862$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Calcutta	N.	8·1	170	2 8	+13	3 38	+12	4·6	6·0
Agra		8·5	249	2 2	+ 2	3 29	− 7	—	5·8
Almata		15·0	331	e 3 36	+ 8	e 4 48	?	—	—
Hyderabad		15·2	212	6 22	S	(6 22)	+ 2	8·8	9·8
Andijan		15·6	315	e 3 31	− 5	e 6 11	−18	e 9·5	—
Frunse		15·8	325	e 3 29	−10	e 6 9	−25	—	—
Bombay		17·2	231	e 3 49	− 8	e 6 49	−17	7·7	11·3
Tashkent		17·8	312	i 4 4	0	i 7 16	− 4	i 9·5	11·0
Samarkand		18·6	304	e 4 10	− 4	—	—	—	—
Phu-Lien		20·3	114	e 4 14	−19	e 8 29	+17	—	—
Kodaikanal	E.	22·1	205	—	—	e 8 44?	− 4	—	—
Chiufeng		25·6	60	e 5 28	+ 3	e 10 13	+22	—	16·3
Hong Kong		25·7	102	—	—	10 15	+22	—	17·0
Sverdlovsk		32·0	333	e 6 35	+12	—	—	14·7	—
Vladivostok		37·7	58	e 8 34	PP	e 16 2	SSSS	20·8	—
Ksara		42·9	287	e 7 53	− 3	e 13 37	−42	17·3	27·7

For Notes see next page.

NOTES TO Nov. 23d. 1h. 30m. 16s.

Additional readings :—
Agra P*E = +2m.29s., P_gE? = +2m.54s., S*EN = +3m.57s., S_gEN = +4m.17s.
Hyderabad S = +7m.50s.
Bombay SSEN = +7m.12s.
Chiufeng iPE = +5m.31s., S?EN = +10m.20s.
Vladivostok e = +18m.38s.
Long waves were also recorded at Zi-ka-wei, Baku, De Bilt, and Strasbourg.

Nov. 23d. 20h. 6m. 23s. Epicentre 11°·5N. 70°·0W. N.3.

A = +·3352, B = −·9208, C = +·1994 ; δ = −1 ;
D = −·940, E = −·342 ; G = +·068, H = −·187, K = −·980.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Port au Prince		7·4	343	i 1 29	−16	i 2 44	−25	—	—
San Juan		7·8	28	i 1 48	− 3	—	—	i 3·5	—
Balboa Heights		9·7	256	e 2 21	+ 4	e 4 9	+ 3	—	—
Huancayo		24·1	193	i 5 15	+ 4	i 9 28	+ 3	13·4	—
La Paz		28·1	176	i 5 49a	+ 1	i 10 58	+24	14·6	18·1
Rio de Janeiro		43·3	143	—	—	e 17 37	SS	e 20·6	—
Mount Wilson	z.	49·2	306	e 8 40	− 5	—	—	—	—
Pasadena	z.	49·2	306	e 8 41	− 4	—	—	—	—
Tinemaha		50·2	309	e 9 0	+ 7	—	—	—	—
Santa Barbara	z.	50·6	305	e 9 5	+ 9	—	—	—	—

Additional readings :—
San Juan i = +2m.36s. and +2m.50s.
Huancayo i = +5m.34s., ePP = +5m.42s.
Long waves were also recorded at Tucson, Scoresby Sund, De Bilt, Strasbourg, and Stuttgart.

Nov. 23d. 22h. 44m. 31s. Epicentre 45°·0N. 17°·9E. N.3.
(epicentre given by Belgrade).

A = +·6729, B = +·2173, C = +·7071 ; δ = 0 ;
D = +·307, E = −·952 ; G = +·673, H = +·217, K = −·707.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Zagreb	1·6	301	i 0 22	− 1	i 0 43	+ 2	i 0·9	1·2
Belgrade	1·8	96	i 0 23a	− 3	i 0 45	− 1	—	0·9
Budapest	2·6	18	i 0 44	P_g	1 18	S*	—	—
Laibach	2·6	296	e 0 40a	+ 3	e 1 16	S*	—	1·4
Graz	2·7	321	e 0 34	− 5	i 0 54	−15	—	1·4
Vienna	3·4	343	i 0 48	− 1	1 41	S*	—	2·5
Padova	4·3	277	e 1 14?	P*	—	—	—	—
Florence	4·9	258	1 49	P_g	2 29	S*	—	—
Prague	5·6	337	—	—	e 2 17	− 6	—	3·0
Zurich	6·8	291	e 1 33	− 4	e 3 27	S*	—	—
Stuttgart	7·0	305	e 2 40	P_g	e 3 54	S_g	4·5	—
Jena	7·2	327	e 1 41	− 1	3 5	+ 1	—	4·0
Basle	7·6	292	e 1 43	− 5	e 4 1	S_g	—	—
Neuchatel	7·9	288	e 1 52	0	e 4 11	S_g	—	—

Additional readings :—
Zagreb iP_g = +27s., iZ = +31s., iNW = +39s. and +47s.
Belgrade iPP = +27s., i = +36s., iSS = +49s.
Budapest eE = +47s. and +49s., eN = +59s., PSE = +1m.12s. and +1m.18s., SE = +1m.24s., S_gE = +1m.34s., iN = +1m.49s., eE = +1m.54s. and +2m.24s., eN = +2m.29s., iN = +2m.45s.
Laibach e = +49s. and +1m.0s.
Graz iP = +38s.
Vienna P_g = +1m.5s., S = +1m.48s. = S_g.
Prague iZ = +2m.30s.
Jena eN = +1m.53s.
Long waves were also recorded at De Bilt and Strasbourg.

Nov. 23d. Readings also at 0h. (Balboa Heights, Hong Kong, New Plymouth, and near Wellington), 1h. (Mount Wilson, Pasadena, and Tinemaha), 2h. (Mount Wilson, Pasadena, and Tinemaha), 3h. (De Bilt, Paris, Strasbourg, Branner, San Francisco, near Berkeley, and Ferndale), 4h. (Stuttgart), 9h. (near Florissant and Little Rock), 14h. (Rio de Janeiro), 15h. (Agra, Kodaikanal, Andijan, Frunse, Samarkand, Ksara, Lick, near Berkeley, Branner, and San Francisco), 18h. (Kodaikanal and near Branner), 19h. (Santiago), 20h. (La Plata and near Santiago), 21h. (La Paz, Rio de Janeiro, Tacubaya, Mount Wilson, Pasadena, Medan, and near Malabar), 22h. (near Malabar), 23h. (near Branner).

Nov. 24d. Readings at 3h. (Granada), 6h. (Andijan, Frunse, Takaka, near Christchurch, New Plymouth, and Wellington), 9h. (Mount Wilson, Pasadena, and Piatigorsk), 12h. (Merida, Oaxaca, Tacubaya, Little Rock, Tucson, Mount Wilson, Pasadena, Lick, near Branner, Berkeley, and near Wellington). 13h. (Hong Kong, Bombay, Calcutta, Chiufeng, Vladivostok, Baku, Tashkent, Sverdlovsk, Pulkovo, Moscow, Tiflis, Ksara, Strasbourg, La Jolla, Mount Wilson (2), Pasadena (2), and Tinemaha), 14h. (Copenhagen, De Bilt, Stuttgart, and Santiago), 16h. (Andijan), 17h. (Balboa Heights, Adelaide, Melbourne, Riverview, Sydney, and Perth), 19h. (near Nagoya), 20h. (near Santiago), 22h. (Hong Kong, Vladivostok, Chiufeng, Calcutta, and near Manila), 23h. (Sverdlovsk and Tashkent).

Nov. 25d. 1h. 5m. 34s. Epicentre 33°·7N. 135°·2E. (as on 1936 Aug. 31d.). X.

$A = -\cdot5903$, $B = +\cdot5862$, $C = +\cdot5548$; $\delta = -11$.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Sumoto	0·7	338	i 0 14	+ 4	i 0 25	+ 7	0·4
Kobe	1·0	359	0 15a	+ 1	i 0 24	− 2	0·4
Toyooka	1·9	350	0 26	− 2	0 44	− 5	0·8
Nagoya	2·0	45	e 0 27	− 2	0 47	− 4	0·8

Nov. 25d. 11h. 43m. 40s. Epicentre 44°·4N. 148°·4E. N.2.

$A = -\cdot6085$, $B = +\cdot3744$, $C = +\cdot6997$; $\delta = +3$;
$D = +\cdot524$, $E = +\cdot852$; $G = -\cdot596$, $H = +\cdot367$, $K = -\cdot714$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Mizusawa		7·6	228	1 44	− 4	3 2	−12	—	—
Nagoya		12·8	227	e 3 5	+ 6	5 27	+ 5	—	—
Sumoto		14·5	230	e 3 14	− 8	—	—	—	—
Husan		17·5	244	e 3 58	− 2	—	—	—	—
Hukuoka B		17·6	240	3 59	− 3	—	—	—	—
Chiufeng		24·1	271	i 5 10a	− 1	e 9 22	− 3	e 11·8	14·8
Zi-ka-wei	Z.	24·9	247	i 5 22k	+ 3	9 50	+11	13·6	15·7
Nanking		26·1	252	e 5 30	0	10 7	+ 7	—	—
Manila		37·8	226	7 10	− 3	13 0	− 3	—	—
Frunse		51·5	295	e 9 5	+ 2	e 16 18	− 4	—	—
Sverdlovsk		53·1	317	i 9 28	+13	e 16 58	+15	25·3	34·0
Calcutta	N.	53·3	266	e 9 40	+24	i 16 37	− 9	—	34·0
Tashkent		55·7	297	e 8 34	−60	i 17 18	− 1	e 28·9	35·1
Moscow		64·2	324	e 11 17	+43	19 5	− 5	36·3	40·6
Pulkovo		64·2	330	e 10 31	− 3	e 19 6	− 4	34·3	39·6
Tinemaha	E.	67·1	60	e 10 56	+ 4	—	—	—	—
Baku		68·1	306	11 0	+ 1	20 3	+ 5	36·8	43·9
Grozny		68·5	310	e 11 6	+ 5	—	—	—	—
Mount Wilson	Z.	69·1	62	i 11 6a	+ 1	—	—	—	—
Pasadena		69·2	62	i 11 5	− 1	—	—	—	—
Piatigorsk		69·2	312	e 11 4	− 2	—	—	—	—
Tiflis		70·1	309	11 11a	0	e 20 25	+ 3	e 35·3	51·0
Erevan		71·9	308	e 11 27	+ 5	—	—	—	—
Theodosia		72·7	317	e 11 27	0	—	—	—	—
Copenhagen		73·2	336	11 32	+ 2	21 3	+ 4	40·3	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Simferopol		73·4	318	e 11 38	+ 7	—	—	—	—
Yalta		73·7	317	e 11 50	+17	—	—	—	—
Vienna	z.	78·3	329	e 12 0	+ 1	—	—	—	—
De Bilt		78·4	338	i 12 0a	+ 1	—	—	e 37·3	56·3
Uccle		89·8	338	—	—	e 22 9	− 5	e 37·3	—
Stuttgart		80·2	334	e 12 10a	+ 1	e 22 25	+ 7	e 45·3	—
Ksara		80·7	309	i 12 10a	− 2	e 23 2	PS	40·3	46·3
Strasbourg		80·8	334	(e 17 20?)	PP	—	—	e 17·3	—
Zurich		81·7	334	e 12 17	0	—	—	—	—

Additional readings :—
Sumoto ePE = +3m.23s., eE = +8m.55s., eN = +8m.58s.
Chiufeng iSN = +9m.30s.
Tashkent i = +9m.17s. and +9m.35s., e = +9m.54s., +11m.8s., and +19m.1s., eSS = +21m.32s., eSSS = +23m.26s.
Tiflis eSSSN = +28m.33s., eN = +31m.44s., eZ = +33m.50s.
Ksara ePP = +15m.12s.
Long waves were also recorded at Hamburg, Upsala, Hong Kong, Paris, Prague, and Scoresby Sund.

Nov. 25d. Readings also at 2h. (Toledo), 3h. (Ksara and near Medan), 4h. (near Santiago), 6h. (Manila and near Monowai), 8h. (near Santiago), 10h. (Mizusawa, near Nagoya, near Christchurch, and Wellington), 13h. (College), 14h. (near Nagoya), 15h. (Sofia and Zurich), 16h. (Samarkand), 17h. (near Florissant and Little Rock), 18h. (Frunse, near Almata, and near Sverdlovsk), 19h. (Fresno), 21h. (Hastings, Mount Wilson (2), Pasadena (2), Tinemaha, Ukiah, near Tiflis, and near Sumoto).

Nov. 26d. 2h. 12m. 6s. Epicentre 10°·7N. 84°·1W. N.3.

A = +·1010, B = −·9774, C = +·1857 ; δ = 0 ;
D = −·995, E = −·103 ; G = +·019, H = −·185, K = −·983.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Balboa Heights		4·8	110	i 1 7	− 1	i 2 1	− 2	—	2·2
Merida	N.	11·5	334	2 27	−15	—	—	—	—
Tacubaya	E.	17·0	303	3 56?	+ 2	—	—	—	—
San Juan		19·0	65	4 19	0	e 7 46	0	e 11·4	—
Columbia		23·5	6	e 5 3	− 2	e 9 16	+ 2	e 10·9	—
Huancayo		24·4	159	5 15	+ 1	e 9 14	−16	10·8	—
Little Rock		25·2	343	e 5 24	+ 2	e 9 50	+ 6	11·9	—
St. Louis		28·5	350	e 5 46	− 6	e 10 22	−18	—	—
Florissant		28·7	350	e 5 49	− 4	e 10 20	−23	—	—
Philadelphia		30·3	15	e 6 13	+ 5	e 11 7	− 2	13·1	—
Chicago		31·2	354	e 6 15	− 1	e 11 11	−12	e 13·2	—
Ann Arbor		31·6	2	e 6 42	+23	e 11 36	+ 7	e 16·5	—
La Paz		32·5	149	e 6 19	− 8	i 11 16	−27	12·7	20·5
Madison		32·7	353	e 6 30	+ 1	e 14 0	SSSS	—	—
Tucson		32·7	315	e 7 36	PP	e 11 34	−12	e 14·6	—
Vermont		35·1	14	—	—	e 12 17	− 6	e 17·3	—
Ottawa		35·4	11	e 6 54?	+ 1	12· 26	− 1	16·9	—
East Machias		37·0	21	e 8 30	PP	e 12 42	− 9	e 15·2	—
Mount Wilson	z.	38·9	313	e 7 23	0	—	—	—	—
Pasadena		38·9	313	e 7 22	− 1	e 13 24	+ 4	e 19·7	—
Tinemaha		40·5	316	i 7 25	− 1	—	—	—	—
Butte		42·9	332	e 10 12	PPPP	e 14 18	− 1	—	—
Berkeley		43·6	316	—	—	e 13 54?	−36	—	—
Ukiah		44·9	317	—	—	e 14 18	−31	—	—
La Plata		51·9	152	9 0	− 6	16 12	−15	26·9	—
Rio de Janeiro		52·3	130	e 9 24	+15	i 16 26	− 7	e 23·4	—
Scoresby Sund		70·8	18	—	—	20 18	−13	29·9	—
San Fernando		74·0	55	—	—	e 22 23	+75	33·9	—
Rathfarnham Castle		74·2	38	i 7 45	?	—	—	28·9	34·9
Granada		76·0	55	e 11 56	+10	—	—	36·4	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Edinburgh	76·1	36	—	—	e 21 39	+ 6	e 39·9	46·9
Oxford	77·2	40	—	—	i 21 45	0	e 32·1	35·4
Kew	77·8	40	—	—	e 21 51	− 1	e 32·9	35·5
Paris	79·7	43	—	—	e 26 54?	SS	33·9	35·9
Uccle	80·8	40	—	—	e 22 19	− 5	e 32·9	—
De Bilt	81·1	38	e 15 27	PP	22 26	− 1	e 33·9	37·5
Stuttgart	84·1	42	e 12 33	+ 4	e 22 54	[+ 2]	e 34·9	38·9
Copenhagen	84·8	34	12 32	0	23 4	− 2	35·9	—
Prague	87·3	39	—	—	e 23 0	[−15]	—	40·4
Pulkovo	92·5	27	17 2	PP	e 24 24	+ 5	40·9	47·6
Sverdlovsk	106·5	20	—	—	25 22	{−20}	44·9	62·5
Tiflis	109·7	38	e 19 32	PP	e 26 27	{+22}	e 46·9	63·6
Baku	113·6	37	e 16 25	?	—	—	e 51·4	64·0
Tashkent	122·5	24	—	—	e 26 31	[+33]	e 54·0	74·6

Additional readings :—
San Juan e = +4m.42s., e = +5m.43s., iS = +7m.57s.
Columbia e = +5m.9s.
Huancayo e = +5m.40s. and +5m.54s., i = +6m.45s., e = +9m.35s. and +9m.44s.
Little Rock ePPPE = +6m.3s.
St. Louis ipPEN = +5m.54s., iN = +6m.18s., iPPN = +6m.25s., iN = +6m.57s., iEN = +7m.27s., eN = +10m.34s., esSN = +10m.41s., iN = +10m.44s.
Florissant +5m.52s., ePPN = +6m.24s., eN = +8m.11s., eEN = +10m.40s., iN = +10m.46s., èZ = +11m.8s., iZ = +11m.14s., iE = +11m.35s.
Philadelphia eP_cP = +9m.19s., e = +10m.49s.
Chicago e = +9m.58s.
Ann Arbor e = +13m.24s. =SSSS − 1s., i = +14m.18s.
Tucson e = +12m.49s., eSS = +12m.54s.
Vermont eSS = +14m.46s.
Ottawa SS = +15m.0s.
Scoresby Sund +25m.30s.
Rathfarnham Castle i = +9m.56s.
Copenhagen +23m.45s. =PS − 4s.
Pulkovo e = +20m.17s. = +26m.46s. = +27m.35s.
Sverdlovsk PS = +28m.8s., SS = +33m.36s.
Baku e = +29m.27s., +30m.37s., and +36m.9s.
Tashkent e = +30m.59s., +35m.42s., +40m.28s., and +53m.41s.
Long waves were also recorded at Sitka, Moscow, Hamburg, Pennsylvania, Bergen, Jersey, Strasbourg, Tortosa, Oak Ridge, Stonyhurst, Bozeman, College, Seattle, Ivigtut, Vladivostok, Hong Kong, Chiufeng, and Cape Town.

Nov. 26d. 8h. 33m. 23s. Epicentre 16°·5S. 179°·0W. N.3.

A = −·9587, B = −·0167, C = −·2840 ; δ = +4 ;
D = −·017, E = +1·000 ; G = +·284, H = +·005, K = −·959.

A correction for depth of focus 0·060 has been applied.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Apia	−0·1	7·5	70	i 2 0	+15	3 40	+31	—	—
Riverview	−3·9	31·9	231	i 5 45	− 2	—	—	—	—
Melbourne	−4·5	38·1	228	i 6 37	0	—	—	—	—
Nagoya	−6·6	66·4	322	—	—	e 18 28	+15	—	—
Batavia	−6·9	73·1	268	i 10 48	+ 1	i 19 31	− 4	—	—
Vladivostok	−7·0	74·7	325	e 17 48	?	e 19 55	+ 2	—	—
Branner	−7·0	75·9	43	11 5	+ 1	—	—	—	—
San Francisco	−7·0	75·9	43	e 11 4	0	—	—	—	—
Santa Barbara	−7·0	75·9	48	i 11 3a	− 1	—	—	—	—
Berkeley	−7·0	76·1	43	i 11 4	− 1	—	—	—	—
Lick	−7·0	76·2	43	e 11 5	− 1	—	—	—	—
La Jolla	−7·1	76·9	49	i 11 9a	0	—	—	—	—
Pasadena	−7·1	76·9	48	i 11 9a	0	e 20 14	− 5	—	—
Mount Wilson	−7·1	77·0	48	i 11 10a	0	—	—	—	—
Fresno N.	−7·1	77·1	45	e 11 10	− 1	—	—	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Riverside		−7·1	77·3	48	e 11 11	− 1	—	—	—	—
Haiwee	N.	−7·1	78·0	46	i 11 16a	0	—	—	—	—
Tinemaha		−7·1	78·3	46	i 11 17a	− 1	—	—	—	—
Tucson		−7·3	81·4	52	e 11 33	− 2	e 21 6	− 4	—	—
Chiufeng		−7·3	82·6	315	i 11 39a	− 3	21 9	−15	—	—
Tashkent		—	117·0	308	—	—	i 26 21	{−35}	—	—
Sverdlovsk		—	120·2	326	19 41	PP	26 56	{−21}	38·6	—
Tiflis	E.	—	134·9	312	—	—	(e 38 7)	?	e 38·1	—
Ksara		—	144·2	304	e 18 57	[−35]	—	—	—	—
De Bilt	Z.	—	144·3	355	i 18 48a	[−44]	—	—	—	—
Uccle	Z.	—	145·6	357	i 18 51a	[−44]	—	—	—	—
Vienna	Z.	—	145·8	341	e 18 50	[−46]	—	—	—	—
Stuttgart		—	147·1	349	e 18 54	[−43]	—	—	—	—
Strasbourg		—	147·4	351	i 18 55a	[−43]	—	—	—	—
Paris		—	147·7	358	e 18 55	[−43]	—	—	—	—
Basle		—	148·5	351	e 18 52	[−48]	—	—	—	—
Zurich		—	148·5	350	e 18 56a	[−44]	—	—	—	—
Granada		—	158·9	10	e 19 50	[− 2]	—	—	—	—

Additional readings :—
Apia P_cP = +7m.40s.
Melbourne i = +6m.52s., e = +15m.3s.
Santa Barbara ipPZ = +13m.0s.
Berkeley epPZ = +13m.3s.
Lick epPN = +13m.3s.
La Jolla epPEZ = +13m.7s.
Pasadena ipP = +13m.6s., iSPZ = +14m.11s., eSKP,PKPZ = +40m.37s.
Mount Wilson ipPNZ = +13m.8s., isPZ = +14m.12s., eSKP,PKPZ = +40m.54s.
Riverside epPE = +13m.1s.
Haiwee eN = +14m.16s.
Tinemaha eN = +13m.44s.
Chiufeng PSEN = +21m.20s.
Tashkent e = +34m.46s.
Ksara e = +21m.58s.
De Bilt eZ = +22m.12s.
Stuttgart ePPZ = +21m.10s.
Strasbourg e = +18m.37s.
Basle e = +18m.59s. and +19m.6s.
Granada e = +23m.37s.
Long waves were also recorded at Jena.

Nov. 26d Readings also at 4h. (Ksara), 6h. (San Juan and near Tiflis), 7h. (near Berkeley, Branner, Lick, and San Francisco), 8h. (Manila, Mount Wilson, Pasadena, Riverside, and Tinemaha), 9h. (Berkeley, La Paz, Baku, Sverdlovsk, and near Nagoya), 10h. and 11h. (La Plata), 14h. (Almeria), 15h. (San Juan, near Mizusawa (2), and Nagoya (2)), 16h. (Hastings, New Plymouth, and near Tuai), 18h. (Balboa Heights, and San Juan), 19h. (Sotchi), 22h. (Mount Wilson, Pasadena, Frunse (2), near Andijan (2), and Samarkand), 23h. (Apia).

Nov. 27d. 2h. 8m. 37s. Epicentre 10°·7N. 84°·1W. (as on 26d.). X.

A = +·1010, B = −·9774, C = +·1857 ; δ = +1.

		Δ	Az	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Merida	N.	11·5	334	2 37	− 5	—	—	—	—
Tacubaya	N.	17·0	303	3 19	−35	—	—	—	—
San Juan		19·0	65	e 5 47	?	—	—	e 11·7	—
Huancayo		24·4	159	—	—	e 8 59	−31	e 12·6	—
Little Rock		25·2	343	e 5 33	+11	—	—	—	—
St. Louis	N.	28·5	350	e 6 8	+16	e 11 1	+21	—	—
Florissant		28·7	350	e 6 4	+11	e 10 50	+ 7	e 17·8	20·8
Philadelphia		30·3	15	—	—	12 18	+69	17·8	—
Chicago		31·2	354	—	—	e 12 4	+41	—	—
Tucson		32·7	315	e 6 31	+ 2	e 12 15	+29	17·2	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M*
		°	°	m. s.	s.	m. s.	s.	m.	m.
Ottawa		35·4	11	—	—	e 13 23?	+56	18·4	—
Riverside		38·3	313	e 6 43	−35	—	—	—	—
Mount Wilson		38·9	313	i 7 13	−10	—	—	—	—
Pasadena		38·9	313	i 7 13	−10	—	—	19·7	—
Haiwee	N.	39·8	315	e 7 22	− 8	—	—	—	—
Santa Barbara	N.	40·2	312	e 7 31	− 3	—	—	—	—
Tinemaha		40·5	316	e 7 30	− 6	—	—	—	—

Additional readings :—
Huancayo e = +10m.45s., +11m.28s., and +11m.47s.
St. Louis iN = +6m.35s.
Florissant eN = +6m.8s., eZ = +11m.17s.
Philadelphia e = +12m.56s., +15m.3s., and +15m.45s., L = +18m.12s.
Tucson eSS = +15m.3s.
Mount Wilson eZ = +10m.4s.
Pasadena eZ = +10m.6s
Long waves were also recorded at Berkeley, Bozeman, Stuttgart, De Bilt, Edinburgh, Scoresby Sund, Sverdlovsk, Strasbourg, Ukiah, Tashkent, and Tiflis.

Nov. 27d. Readings also at 1h. (Merida and Madison), 6h. (Merida (2), Tucson, Scoresby Sund, Andijan, Frunse, and near Tananarive), 7h. (near Kobe, Sumoto, Toyooka, and Nagoya), 10h. (near Manila), 11h. (Belgrade, Sofia, and Zagreb), 17h. (Mizusawa), 18h. (near Nagoya).

Nov. 28d. Readings at 4h. (near Sumoto), 8h. (near Hukuoka B), 10h. (near Sumoto), 11h. (Almeria, Granada, San Fernando, Toledo, Strasbourg, Paris, Ksara, Tiflis, Baku, Tashkent, Cape Town, and near Balboa Heights), 12h. (Kew, Stonyhurst, Edinburgh, De Bilt, Prague, Stuttgart, Copenhagen, Sverdlovsk, Andijan, Frunse, Samarkand, and Tashkent), 13h. (Malabar, Frunse, Tashkent, and near Andijan), 15h. (Sverdlovsk), 17h. (Mount Wilson, Pasadena, Vladivostok, Tashkent, Tiflis, and Sverdlovsk), 19h. (Algiers and Tananarive), 21h. (Helwan), 22h. (Tiflis), 23h. (Sverdlovsk, Tashkent, Vladivostok, and near Mizusawa).

Nov. 29d. 4h. 11m. 0s. Epicentre 38°·3N. 72°·8E. (as on 1936 Oct. 20d.). X.

A = +·2321, B = +·7497, C = +·6198 ; δ = +7.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan		2·5	352	e 0 38	+ 2	i 1 14	S*	—	1·3
Tashkent		4·0	320	i 0 50	− 7	i 1 26	−16	i 1·8	1·8
Samarkand		4·7	289	e 1 8	+ 1	—	—	—	—
Tchimkent		4·7	326	e 1 3	− 4	1 59	− 1	—	—
Frunse		4·8	17	e 1 17	P*	2 15	S*	—	2·6
Almata		5·9	31	e 1 18	− 6	i 2 46	S*	i 3·1	—
Agra	E.	12·0	157	—	—	e 5 31	+28	i 8·1	—
Baku		17·8	284	e 4 34	+30	e 7 53	+33	e 9·3	—
Bombay		19·4	180	e 4 0?	−23	—	—	—	—
Sverdlovsk		20·2	340	4 41	PP	8 18	+ 8	i 11·9	12·1
Calcutta	N.	20·6	135	e 4 58	+22	—	—	i 10·1	—
Tiflis		21·6	288	e 4 45	− 1	e 8 31	− 7	e 9·7	—
Kodaikanal	E.	28·4	170	—	—	e 8 0?	?	—	—
Pulkovo		34·2	323	—	—	e 14 30	SS	17·0	—

Additional readings :—
Andijan iP_g = +40s., iPP = +42s. and +45s.
Tchimkent eP_g = +1m.14s., i = +1m.21s. and +1m.52s.
Frunse eP_g = +1m.29s., e = +1m.48s. and +2m.11s.
Sverdlovsk iL_g = +10·3m.
Long waves were also recorded at Hyderabad, Vladivostok, Copenhagen, and De Bilt.

Nov. 29d. 6h. Undetermined shock. Pacific.

Tacubaya PN =30m.59s.?
Tucson eP =33m.38s., e =33m.56s., eS =36m.31s. and 38m.12s., eSS = 39m.9s., eL =40m.38s.
Huancayo e? =34m.1s., e =34m.35s., 35m.12s., 36m.4s., 36m.33s., 39m.10s., 39m.53s., and 40m.8s., S =40m.59s., e =42m.39s., eSS =42m.50s., eL =45m.18s.
La Jolla ePZ =34m.7s.
Mount Wilson iPZ =34m.22s., eZ =37m.32s.
Pasadena iP =34m.23s., iZ =37m.33s., eLN =41m.18s.
La Paz PN =36m.25s., iSN =42m.56s., L =48m.0s., M =53m.0s.
San Juan e =36m.48s. and 41m.18s., eL =42m.24s.
Philadelphia eP =37m.30s., iP =37m.40s., eS =42m.6s., e =48m.52s., eL =52m.18s.
Honolulu e =42m.54s., 51m.6s., 52m.6s., 53m.6s., and 53m.36s., eL =54m.36s.
Ottawa e =43m.4s., L =53m.
Butte e =44m.42s.
Sverdlovsk e =64m.0s. and 68m.14s., L =79m.
Pulkovo e =66m.33s., L =80m
Long waves were also recorded at Berkeley, Bozeman, St. Louis, Oak Ridge, De Bilt, Paris, Strasbourg, Stuttgart, Copenhagen, Ksara, Baku, and Tashkent.

Nov. 29d. 8h. 26m. 0s. Epicentre 22°·0S. 170°·2E. (as on 1936 Jan. 15d.). R.2.

$A = -\cdot9137$, $B = +\cdot1578$, $C = -\cdot3746$; $\delta = +7$;
$D = +\cdot170$, $E = +\cdot985$; $G = +\cdot369$, $H = -\cdot064$, $K = -\cdot927$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni		16·8	165	e 4 0?	+ 8	6 48	− 9	8·0	—
New Plymouth		17·4	170	—	—	e 6 0?	−71	7·0	—
Apia		19·0	67	e 4 20	+ 1	e 7 53	+ 7	—	—
Wellington		19·7	170	4 27	+ 1	8 10	+10	9·5	13·0
Riverview		20·5	231	e 4 39	+ 4	e 8 32	+16	c 10·2	14·5
Sydney		20·5	231	e 4 12	−23	e 8 25	+ 9	11·0	12·7
Christchurch		21·6	176	4 42	− 4	i 8 50	+12	11·0	—
Melbourne		26·8	229	e 5 42	+ 6	10 25	+13	13·6	17·4
Adelaide		30·5	237	e 6 30	+21	e 11 13	+ 1	15·6	18·7
Manila		60·5	302	10 50	+42	18 50	+27	—	—
Batavia		63·0	275	10 24	− 1	18 46	− 9	e 30·0	—
Nanking		73·1	316	e 11 24	− 5	e 20 40	−18	—	—
Vladivostok		74·0	332	—	—	e 21 5	− 3	25·8	40·6
Chiufeng		79·9	321	e 12 6	− 1	i 22 10	− 5	—	—
Pasadena		88·2	52	i 12 48	− 1	—	—	—	—
Mount Wilson	Z.	88·3	52	i 12 48	− 1	—	—	—	—
Calcutta	N.	91·3	294	e 18 7	PPP	i 24 5	− 3	—	—
Tucson		91·9	56	—	—	e 30 36	SS	e 43·9	—
Colombo		92·9	276	13 34	+23	—	—	—	52·5
Kodaikanal	E.	96·3	278	e 13 0?	−26	—	—	—	—
Agra	E.	101·7	294	—	—	i 24 27	[− 7]	—	—
Bombay		103·5	285	e 18 0?	PP	—	—	—	59·6
Huancayo		107·3	111	e 21 18	PPP	e 26 30	{+43}	e 49·9	—
La Paz	N.	111·1	119	e 28 0	PS	—	—	68·0	70·4
Tashkent		112·3	307	e 19 24	PP	—	—	e 48·0	79·3
Sverdlovsk		118·9	323	e 20 17	PP	e 28 12	{+63}	48·0	76·0
Ottawa		122·2	49	—	—	e 31 0?	SKSP	54·0	—
Baku		126·8	304	e 21 26	PP	e 31 48	SKSP	60·5	79·7
Tiflis	Z.	130·6	306	e 19 21	[+13]	—	—	e 64·0	—
Pulkovo		132·9	333	e 22 49	PKS	e 28 27	{−13}	64·0	73·3
Ksara		138·3	295	e 19 33	[+14]	i 26 36	?	67·5	79·0
Sofia		145·6	314	e 19 30	[− 5]	—	—	—	—
Belgrade	Z.	146·3	319	e 19 41a	[+ 5]	—	—	—	—
Vienna		146·5	328	e 19 41	[+ 5]	—	—	—	—
Jena		146·6	334	e 19 43	[+ 6]	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
De Bilt		147·8	342	e 19 48	[+ 9]	—	—	e 74·0	80·6
Uccle	z.	149·1	343	e 19 50	[+10]	—	—	—	—
Stuttgart		149·3	335	e 19 46	[+ 5]	—	—	e 74·0	—
Strasbourg		150·0	336	e 20 0?	[+18]	—	—	e 36·0	—
Zurich		150·6	334	e 19 50	[+ 7]	—	—	—	—
Paris		151·5	343	e 19 0?	[−44]	—	—	76·0	—

Additional readings :—
Apia ePP = +4m.42s., e = +5m.30s.
Wellington PP = +4m.47s., SS = +8m.55s.
Riverview ePE = +4m.40s., i = +4m.55s., iSN = +8m.35s., iZ = +8m.39s., iSSN = +8m.55s., iSSSE = +9m.0s.
Melbourne i = +10m.48s.
Adelaide e = +10m.24s., i = +13m.11s.
Batavia SN? = +15m.27s.
Vladivostok e = +22m.30s.
Chiufeng pP? = +12m.30s., isS?N = +22m.30s.
Tucson e = +39m.30s.
Tashkent e = +21m.56s. and +39m.0s.
Ottawa e = +41m.0s.?
Baku e = +34m.31s., +38m.53s., +44m.13s., and +48m.24s.
Tiflis eE = 20m.39s , eZ = +22m.23s., +23m.0s., and +36m.36s.
Pulkovo e = +40m.13s. and +43m.36s.
Ksara ePP = +22m.40s., eSKKS = +29m.24s., eSKSP = +32m.44s., ePPS = +35m.16s., eSS = +41m.18s.
Belgrade eZ = +19m.49s., +20m.35s., +21m.2s.
Zurich e = +9m.34s.
Long waves were also recorded at Hong Kong, Medan, Hyderabad, Berkeley, Copenhagen, San Fernando, and Ukiah.

Nov. 29d. 14h. 54m. 37s. Epicentre 25°·0S. 66°·0W. (as on 1930 Dec. 24d.). X.

A = +·3686, B = −·8280, C = −·4226 ; δ = +4 ;
D = −·914, E = −·407 ; G = −·172, H = +·386, K = −·906.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Montezuma		3·5	312	—	—	i 1 29	− 1	i 2·0	—
La Paz	N.	8·7	346	i 2 8	+ 5	i 3 18	−23	4·1	5·1
La Plata		12·1	146	3 49	+59	6 25	S_g	7·6	—
Huancayo		15·7	324	e 3 37	− 1	5 34	−57	5·9	—
Rio de Janeiro		21·0	89	5 23?	+43	—	—	—	—
San Juan		43·4	0	e 8 31	+31	e 13 39	−48	—	—
Oak Ridge		67·7	356	i 10 53	− 3	—	—	—	—
Tucson		71·5	321	e 11 13	− 7	—	—	e 20·1	—
La Jolla		75·7	317	e 11 44	0	—	—	—	—
Riverside		76·5	318	e 11 49	0	—	—	—	—
Mount Wilson		77·1	318	i 11 54k	+ 1	—	—	—	—
Pasadena		77·4	318	i 11 54k	0	i 21 45	− 2	—	—
Santa Barbara		78·3	317	i 12 0	+ 1	—	—	—	—
Haiwee	N.	78·4	320	e 12 0	+ 1	—	—	—	—
Berkeley		82·1	318	e 12 19	0	—	—	—	—
San Fernando		83·4	45	—	—	i 22 37	[−10]	—	—
Strasbourg		98·6	40	—	—	e 25 23?	+. 9	—	—
Stuttgart		99·5	40	e 14 38	− 3	e 24 8	[−15]	—	—
Ksara		113·0	63	e 19 33	PP	—	—	—	—
Pulkovo		114·5	32	e 16 58	?	—	—	28·4	—
Tiflis	z.	121·4	55	e 20 32	PP	—	—	—	—
Sverdlovsk		130·5	35	e 19 32	[+24]	i 28 18	{− 7}	54·4	—
Tashkent		139·7	~~52~~	~~i 19~~ 37	[+16]	e 40 25	SS	—	—

For Notes see next page.

NOTES TO NOV. 29d. 14h. 54m. 37s.

Additional readings :—
Huancayo i = +3m.43s., +4m.8s., +4m.52s.
San Juan ePP = +9m.28s., e = +10m.30s. and +15m.44s., eSS = +16m.47s., e = +17m.15s.
Ksara ipPP = +20m.23s., iSP = +28m.52s., eSPP = +30m.0s., esSS = +36m.31s.
Tiflis eE = +22m.2s.
Sverdlovsk e = +21m.42s., i = +22m.33s. = PKS −3s., e = +38m.42s. = SS −4s.
Tashkent e = +20m.35s. and +21m.41s., i = +22m.54s. and +23m.20s., e = +23m.27s.

Nov. 29d. 22h. 50m. 17s. Epicentre 22°·3N. 121°·3E. (as on 1936 Aug. 22d.). R.3.

$A = -\cdot4807$, $B = +\cdot7906$, $C = +\cdot3795$; $\delta = +14$;
$D = +\cdot854$, $E = +\cdot520$; $G = -\cdot197$, $H = +\cdot324$, $K = -\cdot925$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Taihoku		2·8	4	0 41	+ 1	1 15	+ 3	—	1·5
Hong Kong		6·6	271	0 47	P*	2 53	+ 5	3·8	5·1
Manila		7·7	183	1 45	− 4	3 27	+11	—	—
Zi-ka-wei	z.	8·9	0	e 2 7	+ 1	4 39	S_g	5·4	6·4
Nanking		10·0	348	e 2 21	0	e 4 44	S*	e 5·3	—
Phu-Lien		13·7	266	e 3 13	+ 2	e 7 0	+76	7·7	—
Husan		14·5	26	—	—	e 8 50	?	—	—
Keizyo		16·1	17	e 3 43	0	e 9 2	?	e 13·1	—
Chiufeng		18·4	347	e 4 9	− 2	7 36	+ 3	8·6	13·2
Nagoya		18·8	43	e 3 37	−39	4 40	?	—	—
Vladivostok		22·7	20	e 4 56	− 2	i 9 7	+ 8	11·7	17·7
Calcutta	N.	30·3	276	—	—	e 9 44	−85	—	24·9
Agra	E.	39·4	285	e 8 24	+57	e 13 22	− 5	—	—
Frunse		43·7	309	e 8 4	+ 2	—	—	—	—
Andijan		44·9	305	e 7 45	−27	—	—	—	—
Bombay		45·3	274	e 7 43?	−32	—	—	—	—
Tashkent		47·3	307	8 26	− 5	15 25	+ 2	e 24·0	29·4
Sverdlovsk		55·6	325	9 46	+13	17 30	+13	25·7	30·6
Tiflis		65·6	307	e 10 44	+ 2	e 19 26	− 1	e 31·7	38·3
Pulkovo		71·3	328	e 11 31	+12	—	—	35·7	43·6
Ksara		74·2	300	i 11 33	− 3	e 21 6	− 5	—	42·7

Additional readings :—
Taihoku eP = +45s., SE = +1m.18s.
Hong Kong ? = +1m.57s.
Chiufeng iP = +4m.15s., iSN = +7m.38s.
Calcutta iN = +13m.59s. and +15m.25s., eN = +17m.19s.
Agra eE = +9m.26s.
Tiflis eSSSN = +27m.30s.
Ksara ePPP = +15m.55s., eSS = +26m.1s.
Long waves were also recorded at Strasbourg, Paris, Hyderabad, Copenhagen, De Bilt, Hamburg, Edinburgh, Kew, Moscow, and Stuttgart.

Nov. 29d. Readings also at 0h. (Tiflis and near Mizusawa), 1h. (near Mizusawa), 5h. (Andijan, Frunse, Little Rock, Branner, and near Fresno), 7h. (Tacubaya), 8h. (Mount Wilson, Pasadena, Tucson, San Juan, and Honolulu), 9h. (Nagoya), 10h. (Perth), 15h. (near Santiago and near Tiflis), 16h. (near Santiago), 22h. (near Mizusawa), 23h. (Mount Wilson (2), Pasadena (2), and near Apia).

Nov. 30d. 23h. 45m. 51s. Epicentre 2°·0S. 126°·0E. (as on 1936 Oct. 19d.). R.1.

A = −·5874, B = +·8085, C = −·0349 ; δ = −7 ;
D = +·809, E = +·588 ; G = +·021, H = −·028, K = −·999.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Palau		12·6	42	2 56	0	5 18	+ 1	—	—
Manila		17·3	344	3 59a	+ 1	4 24	?	—	—
Malabar		19·0	255	4 25	+ 6	i 8 6	SSSS	—	—
Batavia		19·6	258	4 26	+ 1	i 8 34	+36	11·1	—
Soengi Langka		21·0	261	4 41	+ 1	8 43	+17	—	—
Kosyun		24·6	348	5 17	+ 1	9 35	+ 1	—	—
Takao		25·2	348	5 27	+ 5	—	—	—	—
Taito		25·3	350	5 32	+ 9	—	—	—	—
Tainan		25·6	348	5 29	+ 4	—	—	—	—
Arisan		26·0	349	4 32	−57	—	—	—	—
Karenko		26·3	350	4 32	−60	—	—	—	—
Isigakizima		26·4	356	5 32	− 1	—	—	—	—
Taityu		26·7	349	5 44	+ 9	—	—	—	—
Hong Kong		26·9	335	5 45a	+ 8	10 11	− 3	12·7	15·1
Taihoku		27·4	351	(e 5 41)	− 1	(10 56)	+34	—	—
Azinkoto		27·9	352	6 0	+14	—	—	—	—
Medan		27·9	282	5 44	− 2	i 10 32	+ 2	—	—
Phu-Lien		29·6	321	e 6 3	+ 2	e 10 56	− 2	14·1	—
Nake		30·6	7	6 11	+ 1	11 9	− 5	—	—
Perth		31·5	198	6 9	− 9	10 39	−49	13·6	33·1
Zi-ka-wei	Z.	33·5	353	i 6 38	+ 2	14 6?	SSS	—	41·1
Kagosima		33·8	6	6 28	−11	—	—	—	—
Miyazaki		34·3	8	6 42	− 1	12 12	+ 1	—	—
Nanking		34·7	348	i 6 47	+ 1	12 17	0	e 17·0	—
Adelaide		35·0	163	i 6 46	− 3	i 12 10	−11	—	29·4
Kumamoto		35·1	6	6 17	−33	—	—	—	—
Simidu		35·4	10	6 53	0	—	—	—	—
Hukuoka B		35·8	5	e 6 42	−14	e 12 23	−10	—	—
Koti		36·3	10	7 0	0	12 35	− 6	—	—
Matuyama		36·4	9	7 31	+30	—	—	—	—
Siomisaki		36·6	13	7 1	− 2	12 39	− 6	—	—
Husan		37·2	3	e 7 15	+ 7	12 49	− 5	—	—
Wakayama		37·2	12	7 9	+ 1	12 50	− 4	—	—
Sumoto		37·3	12	7 8a	− 1	12 50	− 6	—	—
Kobe	E.	37·7	12	e 7 16	+ 4	12 58	− 4	e 15·5	21·2
	N.	37·7	12	e 7 14	+ 2	12 56	− 6	e 15·5	25·1
	Z.	37·7	12	e 7 9	− 3	e 12 56	− 6	e 15·5	26·1
Osaka		37·7	12	7 11	− 1	13 0	− 2	—	—
Osaka B		37·7	12	7 13	+ 1	13 6	+ 4	—	—
Kameyama		38·1	14	7 16	0	12 56	−12	—	—
Kyoto		38·1	13	7 5	−11	—	—	—	—
Omaesaki		38·4	17	7 19	+ 1	—	—	—	—
Hikone		38·5	13	7 21	+ 2	—	—	—	—
Nagoya		38·6	14	e 7 20	0	13 11	− 4	—	—
Gihu		38·7	14	7 15a	− 6	13 7	−10	—	—
Hamamatu		38·7	16	7 41	+20	13 29	+12	—	—
Numadu		39·0	17	7 23	− 1	—	—	—	—
Mera		39·1	18	7 43	+19	—	—	—	—
Hunatu		39·4	17	7 27	0	—	—	—	—
Kohu		39·4	17	7 26	− 1	13 13	−14	—	—
Keizyo	E.	39·6	1	e 13 27	S	(e 13 27)	− 3	—	—
Riverview		39·6	147	e 7 26	− 3	13 2	−28	e 19·1	24·8
Sydney		39·6	147	e 7 5	−24	i 13 12	−18	21·2	25·6
Melbourne		39·8	157	e 7 27	− 3	13 34	+ 1	20·8	23·3
Tokyo		39·8	18	7 33	+ 3	—	—	—	—
Oiwake		40·1	16	7 30	− 3	13 28	−10	—	—
Toyama		40·1	13	7 34	+ 1	13 32	− 6	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Kumagaya		40·2	17	7 27	− 7	—	—	—	—
Maebasi		40·3	16	7 33	− 2	—	—	—	—
Nagano		40·3	15	7 33	− 2	13 33	− 8	—	—
Kakioka		40·5	16	7 18	−18	—	—	—	—
Wazima		40·7	13	7 35	− 3	—	—	—	—
Yamagata		42·4	16	7 54	+ 2	—	—	—	—
Chiufeng		43·1	348	7 55a	− 3	i 14 18	− 4	—	—
Mizusawa		43·4	17	i 8 0	0	i 14 24	− 3	—	—
Morioka		44·0	17	8 23	+18	—	—	—	—
Calcutta	N.	44·2	305	8 14	+ 8	14 39	0	20·5	28·0
Hatinohe		44·8	17	8 9	− 2	—	—	—	—
Vladivostok		45·4	7	e 8 14	− 2	i 14 53	− 3	27·3	33·1
Hakodate		45·8	15	8 36	+17	—	—	—	—
Sapporo		47·1	15	8 31k	+ 2	15 19	− 1	—	—
Asahigawa		48·1	15	8 41	+ 4	—	—	—	—
Kodaikanal	E.	49·8	286	i 8 53	+ 3	i 15 57	− 1	e 23·2	32·7
Hyderabad		50·7	294	9 0	+ 3	16 14	+ 3	22·9	34·4
Agra	E.	54·6	306	9 26	0	i 17 1	− 3	—	—
Bombay		56·3	294	9 41	+ 3	i 17 22	− 5	27·1	34·3
Christchurch		58·6	141	i 9 52a	− 3	18 29	+32	30·0	—
Almata		63·1	322	10 34	+ 8	—	—	—	—
Andijan		63·5	317	e 10 37	+ 8	19 15	+14	—	—
Frunse		64·3	321	e 10 41	+ 7	—	—	—	—
Semipalatinsk		65·3	331	e 10 42	+ 1	19 21	− 3	—	—
Tashkent		67·1	317	10 50	− 2	i 19 46	0	31·1	43·7
Tchimkent		67·3	318	10 54	0	19 48	0	—	—
Samarkand		68·1	314	10 57	− 2	19 54	− 4	—	—
Sverdlovsk		78·5	330	i 12 11	+11	i 22 2	+ 3	35·1	49·8
Grozny		84·3	314	e 13 0	+30	e 23 11	+10	—	—
Erevan		84·8	310	e 18 25	PPPP	e 28 59	SS	—	—
Tiflis		84·8	312	i 12 33	+ 1	i 22 52	[− 6]	41·2	64·4
College		90·2	25	e 15 45	PP	e 23 33	[− 1]	—	—
Moscow		90·8	326	—	—	e 23 1	[−36]	42·7	56·0
Ksara		91·2	304	i 13 5k	+ 2	24 19	+12	—	—
Theodosia		91·9	316	—	—	e 23 37	[− 7]	—	—
Yalta		92·7	315	—	—	e 23 42	[− 6]	—	—
Simferopol		92·8	315	—	—	e 23 47	[− 2]	—	—
Sebastopol		93·2	315	—	—	e 23 54	[+ 3]	—	—
Helwan		95·0	300	17 24	PP	23 54	[− 7]	—	57·1
Pulkovo		95·0	330	—	—	e 23 25	[−36]	47·1	59·4
Cape Town		103·3	236	e 23 40	S	(e 23 40)	[−62]	e 52·6	—
Copenhagen		104·7	328	18 45	PP	—	—	56·2	—
Victoria		105·1	40	—	—	e 24 9?	[−41]	e 43·1	—
Vienna	Z.	105·2	320	e 18 31	PP	—	—	—	—
Ukiah		107·3	50	e 17 33	[−36]	e 25 3	[+ 2]	—	—
Berkeley	E.	108·3	51	—	—	e 24 58	[− 7]	—	—
Scoresby Sund		108·4	349	—	—	26 9?	{+13}	56·1	—
Stuttgart		108·9	322	e 19 0	PP	—	—	e 59·1	—
Zurich		109·7	320	e 18 46	PP	—	—	—	—
Strasbourg		109·8	322	i 19 11	PP	—	—	e 29·1	—
De Bilt		110·0	326	i 19 10	PP	—	—	e 57·1	67·0
Basle		110·3	320	e 18 48	PP	—	—	—	—
Uccle		111·0	325	i 19 20	PP	—	—	e 55·1	—
Pasadena		112·4	54	e 14 43	+ 1	—	—	e 34·1	—
Mount Wilson	Z.	112·6	54	i 14 46	+ 3	—	—	—	—
Tucson		118·7	53	e 30 9	PS	—	—	e 54·5	—
Toledo		121·1	316	e 20 21	PP	—	—	63·9	—
Almeria		121·2	313	e 20 28	PP	—	—	—	—
Granada		121·9	314	e 19 35	[+45]	—	—	—	—
Ottawa		132·6	21	e 22 39	PKS	e 32 9?	SKSP	e 55·1	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Toronto	132·6	25	e 22 35	PKS	—	—	e 56·1	—
Philadelphia	137·5	24	e 22 56	PKS	e 34 39	?	e 57·2	—
Huancayo	154·6	125	e 19 36	[−12]	—	—	—	—
La Paz	156·8	144	i 19 35a	[−15]	45 9	SS	75·1	104·4
San Juan	159·8	35	e 19 14	[−39]	—	—	—	—

Additional readings :—
Malabar iP = +4m.30s.
Batavia iPZ = +4m.29s., iPEN = +4m.32s.
Hong Kong PP = +6m.17s., P_cP = +9m.31s., SS = +11m.9s.
Taihoku SE = +11m.11s. ; readings have been increased by 10m.
Perth ? = +6m.22s., +7m.14s., +8m.14s., P_cP = +9m.30s., SP = +11m.34s.
Zi-ka-wei +20m.9s., +26m.56s.
Adelaide iPPP = +8m.0s., iPPPP = +8m.8s., i = +8m.43s. and +12m.24s., iSS = +13m.48s., iS_cS = +17m.18s.
Sumoto PZ = +7m.9s.
Kobe ePN = +7m.14s., ePE = +7m.16s., eSZ = +12m.56s., SE = +12m.58s.
Riverview iP = +7m.28s., eEN = −8m.58s.
Melbourne i = +9m.13s. = PPP −3s.
Chiufeng i = +8m.3s., PP? = +9m.42s.
Calcutta PPN = +9m.42s., SSN = +17m.15s., SSSN = +18m.7s.
Kodaikanal iPPPE = +11m.26s., iSSE = +19m.6s., iSSSE = +20m.11s.
Agra iPPE = +11m.28s., ePPPE = +12m.21s., PSE = +17m.25s., SSE = +20m.39s., SSSE = +22m.13s.
Bombay P_cPEN = +10m.51s., S_cS = +19m.22s., SSE = +21m.9s.
Christchurch GN = +26m.2s.
Tiflis eZ = +13m.28s., ePPSE = +23m.51s., eSSE = +28m.21s.
Moscow e = +23m.26s., +23m.55s.
Ksara iPP = +16m.47s., PS = +25m.23s.
Helwan PS = +26m.49s., e = +29m.14s.
Cape Town iPE = +24m.44s., iN = +25m.58s.
Victoria eE = +27m.33s., e = +33m.9s.? = SS −3s., eN = +37m.9s.? = SSS +4s.
Ukiah ePS = +26m.15s.
Berkeley eEZ = +28m.5s., eE = +34m.18s.
Strasbourg i = +21m.19s. = PP −10s.
Basle e = +19m.14s.
Pasadena iPKPZ = +18m.32s., ePPZ = +19m.17s., ePKKPZ = +29m.32s.
Mount Wilson iPKPZ = +18m.32s., iPPZ = +19m.18s., ePKKPZ = +29m.35s.
Tucson eSS = +35m.55s., e = +37m.19s., eSSS = +39m.49s., e = +44m.37s., e = +48m.51s.
Toledo i = +20m.29s.
Ottawa eE = +37m.9s.?
Philadelphia eSS = +39m.58s.
Huancayo i = +19m.52s., $ePKP_2$ = +20m.1s., i = +20m.17s. and +20m.26s., e = +21m.48s., ePP = +23m.44s.
La Paz $iPKP_2Z$ = +20m.26s., ipPZ = +21m.11s., iPPZ = +23m.53s., ipPP = +25m.1s., iZ = +28m.49s., iN = +30m.55s., iZ = +32m.54s.
San Juan $ePKP_2$ = +19m.53s., e = +25m.36s. = +40m.48s.
Long waves were also recorded at Kew, Paris, San Fernando, Wellington, Scoresby Sund, Chicago, and Arapuni.

Nov. 30d. Readings also at 0h. (Ksara, Tiflis, Medan, Mount Wilson, and Pasadena), 1h. (Grozny and Tiflis), 2h. (Agra, Tiflis, Hong Kong, near Manila, near Mizusawa, and Nagoya), 4h. (Tiflis), 6h. (Mizusawa, near Santiago, and San Javier), 7h. (Agra), 10h. (Samarkand, near Andijan, and near Mizusawa), 11h. (Tucson), 16h. (near Mizusawa), 17h. (Adelaide, Perth, Riverview, Sydney, Mount Wilson (2), Pasadena (2), Ksara, Christchurch, and near Wellington), 18h. (Mizusawa), 19h. (Tashkent, Frunse, and near Andijan), 20h. (Mount Wilson and near Tucson), 22h. (Mount Wilson, Pasadena, and Perth), 23h. (Philadelphia, Florissant, St. Louis, La Jolla, Mount Wilson, Pasadena, Riverside, Ukiah, and near Tucson).

Dec. 1d. 6h. 9m. 21s. Epicentre 30°·5N. 129°·0E. (as on 1932 Aug. 26d.). R.1.

A = −·5422, B = +·6696, C = +·5075 ; δ = −10 ;
D = +·777, E = +·629 ; G = −·319, H = +·394, K = −·862.

A depth of focus 0·040 has been applied. See Bull. Seis. Soc. Amer. 30 No. 4 p.377.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
Kagosima	+1·0	1·7	51	0 41k	+ 2	1 13	+ 4	—	—
Tomie	+0·9	2·1	355	0 42k	− 1	1 15	− 2	—	—
Nake	+0·9	2·2	168	0 42a	− 2	1 18	− 2	—	—
Nagasaki	+0·9	2·3	18	0 44	− 2	1 20	− 2	—	—
Unzendake	+0·8	2·5	25	0 52a	+ 5	1 30	+ 5	—	—
Miyazaki	+0·8	2·6	56	0 44a	− 5	1 21	− 6	—	—
Kumamoto	+0·7	2·7	32	1 9a	+20	1 48	+21	—	—
Saga	+0·7	2·9	22	0 50	− 1	1 31	− 1	—	—
Hukuoka	+0·6	3·3	21	i 0 52a	− 4	i 1 35	− 5	—	1·8
Hukuoka B	+0·6	3·3	21	i 0 53a	− 3	i 1 37	− 3	—	1·8
Ooita	+0·5	3·5	38	0 49a	− 8	1 38	− 4	—	—
Ituhara	+0·5	3·7	4	1 3a	+ 3	1 38	−10	—	—
Simonoseki	+0·4	3·8	25	0 53a	− 7	1 43	− 5	—	—
Simidu	+0·4	4·1	54	1 0a	− 4	1 49	− 6	—	—
Uwazima	+0·4	4·1	47	0 57	− 7	1 28	−27	—	—
Naha	+0·3	4·4	196	1 7a	0	2 2	+ 2	—	—
Husan	+0·2	4·6	0	1 8a	0	1 56	− 7	—	2·4
Matuyama	+0·2	4·6	42	1 5a	− 3	1 58	− 5	—	—
Hirosima	+0·1	4·9	36	1 6	− 5	2 3	− 5	—	—
Koti	+0·1	4·9	50	1 9a	− 2	2 5	− 3	—	—
Hamada	+0·1	5·1	29	1 11a	− 3	2 5	− 8	—	—
Muroto	+0·1	5·2	57	1 11a	− 4	2 12	− 3	—	—
Tadotu	+0·1	5·5	46	1 16a	− 4	2 17	− 6	—	—
Okayama	0	5·9	43	1 19	− 5	2 22	− 9	—	—
Tokusima	0	5·9	52	1 21a	− 3	2 28	− 3	—	—
Sakai	0	6·1	33	1 25	− 2	—	—	—	—
Sumoto	0	6·3	51	i 1 26a	− 4	2 33	− 8	e 4·4	—
Siomisaki	0	6·4	61	1 29	− 2	2 44	+ 1	—	—
Wakayama	0	6·4	52	1 27a	− 4	2 38	− 5	—	—
Kobe	−0·1	6·6	49	i 1 31a	− 1	2 41	− 5	—	2·8
Osaka	−0·1	6·8	51	1 36a	+ 1	3 29	+38	—	—
Toyooka	−0·1	7·0	42	1 34a	− 4	2 53	− 3	—	3·0
Yagi	−0·1	7·0	53	1 35a	− 3	2 53	− 3	—	—
Miyadu	−0·2	7·2	43	1 38	− 1	3 12	+13	—	—
Kyoto	−0·2	7·2	47	1 37a	− 2	—	—	—	—
Keizyo	−0·2	7·3	347	i 1 41a	0	i 2 58	− 3	—	3·1
Zinsen	−0·2	7·3	345	i 1 40a	− 1	i 3 3	+ 2	—	3·1
Isigakizima	−0·2	7·5	216	1 27	−17	—	—	—	—
Kameyama	−0·2	7·6	53	1 45a	0	3 13	+ 4	—	—
Tu	−0·2	7·6	53	1 49	+ 4	—	—	—	—
Hikone	−0·2	7·7	50	1 46a	0	3 11	0	—	—
Ibukisan	−0·2	7·9	49	1 48a	− 1	3 13	− 3	—	—
Nagoya	−0·3	8·1	52	i 1 50a	− 1	3 24	+ 5	—	3·4
Gihu	−0·3	8·2	51	1 50a	− 2	3 2	−19	—	—
Hamamatu	−0·3	8·5	57	1 23a	−33	3 0	−29	—	—
Taihoku	−0·3	8·5	232	i 2 1a	+ 5	—	—	—	2·6
Giran	−0·3	8·6	230	2 0a	+ 2	—	—	—	—
Kanazawa	−0·4	8·8	44	1 58a	− 1	3 31	− 3	—	—
Omaesaki	−0·4	8·8	59	2 0a	+ 1	3 43	+ 9	—	—
Nanking	−0·4	8·9	285	2 3	+ 3	i 3 47	+11	e 4·4	—
Takayama	−0·4	8·9	47	2 0	0	—	—	—	—
Heizyo	−0·4	9·0	344	e 2 0	− 2	i 3 42	+ 3	4·8	4·9
Iida	−0·4	9·0	53	2 1a	− 1	3 45	+ 6	—	—
Husiki	−0·4	9·2	44	2 6	+ 1	4 12	+28	—	—
Toyama	−0·4	9·2	45	2 5a	0	3 28	−16	—	—

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Karenko		−0·4	9·3	227	2 5	− 1	—	—	—	—
Matumoto		−0·4	9·4	50	2 8a	+ 1	3 51	+ 2	—	—
Numadu		−0·4	9·5	58	2 8a	− 1	4 8	+17	—	—
Wazima		−0·4	9·5	41	1 47a	−22	3 34	−17	—	—
Hatidyozima		−0·5	9·6	71	2 10a	+ 1	3 58	+ 7	—	—
Hunatu		−0·5	9·6	55	2 10	+ 1	4 15	+24	—	—
Ito		−0·5	9·6	59	2 9a	0	3 54	+ 3	—	—
Kohu		−0·5	9·6	54	2 9	0	3 59	+ 8	—	—
Misima		−0·5	9·6	58	2 10a	+ 1	4 10	+19	—	—
Nagano		−0·5	9·8	48	2 13a	+ 2	4 6	+10	—	—
Taityu		−0·5	9·8	231	2 10	− 1	4 29	+33	—	—
Oiwake		−0·5	9·9	51	2 13a	0	4 4	+ 5	—	—
Arisan		−0·5	10·1	228	2 13	− 3	—	—	—	—
Mera		−0·5	10·1	61	2 17a	+ 1	4 19	+16	—	—
Takada		−0·5	10·1	47	2 17a	+ 1	4 22	+19	—	—
Yokohama		−0·5	10·2	58	2 19a	+ 2	4 23	+17	—	—
Maebasi		−0·5	10·3	52	2 18a	0	4 15	+ 7	—	—
Deiren		−0·5	10·4	327	2 18	− 1	4 11	0	—	—
Kumagaya		−0·5	10·4	53	2 20a	+ 1	4 20	+ 9	—	—
Tokyo		−0·5	10·4	57	2 23a	+ 4	4 25	+14	—	—
Katuura		−0·5	10·5	61	2 24	+ 3	—	—	—	—
Taito		−0·5	10·5	224	2 20	− 1	3 40	−33	—	—
Hokoto		−0·6	10·9	233	2 19	− 6	—	—	—	—
Kakioka		−0·6	10·9	55	2 24a	− 1	4 28	+ 7	—	—
Tainan		−0·6	10·9	228	2 28	+ 3	5 12	+51	—	—
Tukubasan		−0·6	10·9	55	2 25a	0	4 27	+ 6	—	—
Utunomiya		−0·6	10·9	53	2 26	+ 1	4 31	+10	—	—
Takao		−0·6	11·1	227	2 35	+ 7	—	—	—	—
Mito		−0·6	11·2	55	2 30	+ 1	4 35	+ 7	—	—
Niigata		−0·6	11·2	45	2 35	+ 6	4 40	+12	—	—
Tyosi		−0·6	11·2	59	2 29a	0	4 36	+ 8	—	—
Kosyun		−0·6	11·3	223	2 28	− 3	4 46	+15	—	—
Aidu		−0·7	11·6	49	2 50a	+17	5 0	+24	—	—
Onahama		−0·7	11·8	53	2 29	− 7	4 38	− 3	—	—
Hukusima		−0·7	12·0	48	2 37a	− 2	4 48	+ 3	—	—
Titizima		−0·7	12·0	104	2 42	+ 3	4 56	+11	—	—
Yamagata		−0·7	12·1	47	2 41a	+ 1	4 59	+11	—	—
Fengtien		−0·7	12·2	340	1 42	−60	3 59	−51	—	—
Sendai		−0·7	12·5	48	2 44	− 2	5 0	+ 2	—	—
Vladivostok		−0·8	12·8	8	i2 50	+ 2	i5 12	+ 9	—	8·8
Akita		−0·8	12·9	41	2 47	− 3	5 15	+10	—	—
Isinomaki		−0·8	12·9	48	2 48	− 2	5 8	+ 3	—	—
Mizusawa		−0·8	13·1	46	i2 52	0	i5 11	+ 1	—	—
Morioka		−0·8	13·5	43	2 50	− 8	5 21	+ 1	—	—
Hsinking		−0·9	13·7	349	3 15	+16	5 50	+28	—	—
Aomori		−0·9	14·1	39	3 2	− 3	—	—	—	—
Chiufeng		−0·9	14·2	316	i3 8k	+ 2	i5 44	+10	—	—
Hatinoke		−0·9	14·3	42	3 1	− 6	5 35	− 2	—	—
Hakodate		−1·0	14·7	37	3 21	+10	—	—	—	—
Hong Kong		−1·1	15·6	242	3 21k	− 1	6 14	+11	7·3	9·7
Sapporo		−1·1	16·0	34	3 24	− 3	6 27	+14	—	—
Obihiro		−1·2	16·8	38	3 35	− 1	5 57	−32	—	—
Asahigawa		−1·2	17·0	35	3 34	− 5	6 34	0	—	—
Haboro		−1·2	17·1	34	4 32	+52	—	—	—	—
Manila		−1·3	17·5	207	i3 47	+ 3	i6 51	+ 8	—	—
Nemuro		−1·4	18·4	40	3 50	− 4	7 1	− 1	—	—
Phu-Lien		−1·8	22·3	250	i4 34	− 1	i8 19	+ 3	9·7	—
Palau		−2·0	23·7	167	8 36	S	(8 36)	− 4	—	—
Calcutta	N.	−3·2	37·0	269	6 44	+ 5	12 9	+ 6	16·1	—
Medan		−3·3	39·3	234	i7 4	+ 6	i12 42	+ 6	—	—
Semipalatinsk		−3·3	41·1	314	e8 14	+61	—	—	—	—
Batavia		−3·4	42·4	216	i7 26	+ 2	i13 28	+ 7	—	—
Agra	E.	−3·6	44·4	279	i7 37	− 2	i13 47	− 1	—	—
Andijan		−3·7	46·3	299	e8 0	+ 7	e14 22	+ 7	—	—
Hyderabad		−3·8	47·9	266	10 2	PPP	14 40	+ 3	16·5	19·2

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
Tashkent		−4·0	48·6	300	i 8 5	− 5	i 14 45	+ 1	—	23·4
Samarkand		−4·0	50·6	298	e 8 26	+ 1	e 17 48	?	—	—
Colombo		−4·1	51·6	253	8 36	+ 4	15 34	+ 8	—	—
Bombay	N.	−4·2	51·8	273	e 8 39	+ 6	i 15 40	+13	—	—
Kodaikanal	E.	−4·2	51·9	260	i 8 39	+ 5	i 15 39	+10	23·4	—
Sverdlovsk		−4·2	53·2	320	i 9 2	+20	i 16 11	+24	25·6	—
College		−4·6	59·8	29	—	—	e 17 13	+ 1	—	—
Perth		−4·7	63·7	192	—	—	i 18 9	+ 6	—	—
Grozny		−4·7	65·0	307	10 25	+18	i 18 53	+33	—	—
Moscow		−4·7	66·0	322	—	—	e 20 17	?	e 40·6	50·2
Tiflis		−4·7	66·2	306	e 10 17	+ 2	18 44	+ 8	e 26·1	—
Piatigorsk		−4·7	66·6	309	e 9 39	−39	i 18 25	−16	—	—
Pulkovo		−4·8	68·1	328	—	—	19 3	+ 4	36·6	39·8
Melbourne		−4·9	69·9	167	—	—	19 27	+ 7	32·2	—
Theodosia		−4·9	71·3	313	—	—	i 19 41	+ 4	—	—
Simferopol		−4·9	71·5	313	—	—	e 19 50	+10	—	—
Yalta		−4·9	72·2	312	—	—	e 19 52	+ 4	—	—
Sebastopol		−4·9	72·7	312	—	—	e 19 58	+ 4	—	—
Ksara		−5·0	75·8	301	i 11 17k	+ 1	20 37	+ 6	—	—
Scoresby Sund		−5·0	76·9	351	—	—	26 39?	?	—	—
Victoria		−5·1	78·1	40	—	—	i 20 50	− 7	—	—
Copenhagen		−5·1	78·3	329	—	—	20 57	− 2	44·6	—
Vienna	Z.	−5·1	80·9	321	e 11 40	− 5	21 30	+ 1	—	—
Ukiah		−5·2	83·3	48	—	—	e 21 45	−10	—	—
Stuttgart		−5·3	84·3	325	e 11 59	− 4	e 21 55	−10	e 46·6	—
Berkeley		−5·3	84·7	49	i 12 1	− 4	e 21 56	−13	—	—
Branner		−5·3	85·0	49	e 12 2	− 4	—	—	—	—
Strasbourg		−5·3	85·2	325	i 12 4a	− 3	i 22 9	− 6	e 46·6	—
Uccle		−5·3	85·2	329	i 12 6	− 1	22 0	−15	—	—
Lick		−5·3	85·4	49	e 12 4	− 4	—	—	—	—
Zurich		−5·3	85·6	323	e 11 56	−13	e 22 1	−18	—	—
Basle		−5·3	85·9	324	e 12 6	− 5	e 22 19	− 3	—	—
Florence		−5·3	86·4	320	22 4	S	(22 4)	−23	—	—
Santa Barbara		−5·4	88·3	50	i 12 18	− 5	—	—	—	—
Pasadena		−5·4	89·5	50	i 12 23k	− 6	e 22 48	−11	—	—
Mount Wilson	Z.	−5·4	89·6	50	i 12 23k	− 6	i 22 28	−32	—	—
Riverside		−5·4	90·2	50	e 12 25	− 7	—	—	—	—
La Jolla		−5·4	90·9	50	i 12 28k	− 8	i 22 34	−39	—	—
Tucson		−5·5	95·5	47	e 12 45	−12	e 23 4	−52	e 45·5	—
Ottawa		—	100·8	17	—	—	e 23 21	?	e 36·6	—
Toronto		—	101·4	20	—	—	e 25 0	−39	—	—
San Juan		—	129·0	18	e 21 49	PKS	—	—	—	—
Huancayo		—	150·9	56	19 13	[−30]	—	—	—	—
La Paz		—	159·0	52	i 19 23k	[−29]	i 43 20	SS	—	—
La Plata		—	172·8	129	31 9	PPPP	32 15?	{−12}	—	—

Additional readings :—
Nagasaki S_cS = +14m.30s.
Miyazaki S_cS = +14m.32s.
Kumamoto S_cS = +14m.51s.
Hukuoka B S_cS = +14m.31s.
Simidu S_cS = +14m.30s.
Naha S_cS = +14m.36s.
Husan S_cS = +14m.32s.
Matuyama S_cS = +14m.32s.
Koti S_cS = +14m.32s.
Hamada S_cS = +14m.31s.
Sumoto iS_cSEN = +14m.33s.
Momisaki S_cS = +14m.35s.
Wakayama S_cS = +14m.33s.
Kobe SN = +2m.43s.
Isigakizima S_cS = +14m.23s.
Kameyama S_cS = +14m.36s.
Nagoya S_cS = +14m.36s.
Gihu S_cS = +14m.35s.
Hamamatu S_cS = +14m.5s.

Continued on next page.

Nanking i = +4m.0s.
Kohu S_cS = +14m.37s.
Nagano S_cS = +14m.39s.
Arisan S_cS = +14m.37s.
Yokohama S_cS = +14m.38s.
Darien S_cS = +14m.34s.
Tukubasan S_cS = +14m.38s.
Kosyun S_cS = +14m.41s.
Hukusima S_cS = +14m.39s.
Titizima S_cS = +14m.37s.
Sendai S_cS = +14m.41s.
Akita S_cS = +14m.41s.
Chiufeng iZ = +3m.26s.
Hatinohe S_cS = +14m.45s.
Hong Kong PE = +3m.24s., ? = +4m.34s.
Sapporo S_cS = +14m.52s.
Nemuro S_cS = +14m.58s.
Calcutta PPN = +7m.40s.
Kodaikanal PPE = +10m.34s., PPPE = +11m.24s.
College S = +17m.29s.
Moscow i = +28m.39s.
Tiflis pPE = +11m.12s., SPN = +11m.22s., eN = +19m.46s.
Piatigorsk i = +19m.27s.
Pulkovo e = +28m.15s.
Simferopol e = +20m.30s.
Ksara ipP = +12m.19s., SP = +12m.43s., pPP = +15m.13s., SS = +22m.17s., PKP,PKP = +38m.15s.
Stuttgart epP = +13m.7s., ePS = +22m.57s.
Berkeley iZ = +22m.4s., iE = +22m.58s., iZ = +23m.0s.
Strasbourg i = +13m.9s. and +24m.13s.
Florence S = +22m.28s.
Pasadena eSKSEN = +22m.26s., iS = +22m.51s., iSP = +24m.3s.
Mount Wilson eSPZ = +23m.58s.
Tucson e = +25m.3s. and +26m.27s.
Ottawa eE = +32m.33s.
Toronto e = +23m.27s.
San Juan ePKS = +21m.57s., e = +23m.25s.
Huancayo i = +19m.19s., $iPKP_2$ = +19m.27s., e = +19m.38s., +19m.44s., and +22m.51s., eSKSP = +32m.41s., eSS = +41m.57s.
La Paz $iPKP_2$ = +20m.8s., eN = +48m.45s.
Long waves were also recorded at Granada and Jersey.

Dec. 1d. Readings also at 0h. (Wellington), 3h. (Wellington, Mount Wilson, Pasadena, Jersey, Samarkand, and near Andijan), 4h. (Helwan), 5h. (Chicago), 6h. (Strasbourg and Tiflis), 7h. and 9h. (near Santiago), 13h. (Pasadena), 14h. (Reykjavik and near San Javier), 17h. (Riverview, Christchurch, Tucson, Andijan, and Yalta), 20h. (Tucson), 21h. (near Berkeley).

Dec. 2d. 18h. 30m. 30s. Epicentre 39°·3N. 70°·5E. N.3.
(as given by the stations of Central Asia).

A = +·2583, B = +·7294, C = +·6334 ; δ = −6 ;
D = +·943, E = −·334 ; G = +·211, H = +·597, K = −·774.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan		2·0	45	0 31	+ 2	1 3	S_g	—	1·1
Tashkent		2·2	336	i 0 32	+ 1	i 1 8	S_g	—	1·7
Samarkand		2·8	278	e 0 37	− 3	1 22	S*	—	—
Tchimkent		3·1	347	e 0 42	− 2	i 1 31	S*	—	1·6
Frunse		4·7	39	e 1 7	0	2 7	+ 7	—	2·7
Sverdlovsk		18·7	342	—	—	e 7 54	SS	10·5	—
Tiflis	N.	19·6	286	e 4 8	−17	(e 8 0)	+ 2	e 8·0	—
Calcutta	N.	22·6	132	—	—	e 9 0	+ 3	—	—

Additional readings :—
Andijan i = +33s., P_g = +35s., iPP = +41s., i = +44s.
Samarkand iP_g = +42s., iPS = +56s.
Tchimkent e = +58s., ePS = +1m.17s.
Frunse e = +1m.17s., S_g = +2m.32s.
Sverdlovsk e = +9m.9s. and +10m.9s.
Baku records long waves.

Dec. 2d. Readings also at 1h. (Samarkand, near Andijan, and near Sumoto), 2h. Tashkent(), 3h. (Calcutta and Phu-Lien), 4h. (Hong Kong, Vladivostok, Tashkent, and near Medan (2)), 5h. (near Frunse), 6h. (near Christchurch and New Plymouth), 9h. (Tucson), 11h. (La Paz and Santiago), 15h. (Montezuma, San Javier, and near Santiago), 16h. (Balboa Heights and near Santiago), 17h. (Rotorua (2)), 18h. (Cheb (3), Adelaide, Melbourne, Perth, Riverview, Rotorua, Wellington, Christchurch, and near Branner), 19h. (Hong Kong, near Manila, and near Berkeley), 21h. (Frunse, near Andijan, near Branner, and near Santiago), 22h. (near Andijan and near Santiago), 23h. (Cheb (3)).

Dec. 3d. 20h. Shock attributed to 31°·0N. 62°·5E. by stations of U.S.S.R. This determination appears in error, but a satisfactory alternative has not been found.

Agra eE =1m.33s., eSE? =7m.26s.
Samarkand P =4m.57s., e =5m.44s.
Erevan eP =5m.9s.
Tchimkent eP =5m.12s., e =6m.40s. and 8m.55s.
Tashkent eP =5m.18s., eS =7m.30s., iL =8m.30s., M =8m.54s.
Tiflis PE =5m.27s., eN =5m.40s., eEN =7m.31s., eN =8m.10s., i =9m.28s., eL =10m.30s. and 12m.30s., M =16m.12s.
Andijan eP =5m.40s., e =8m.23s. and 9m.49s.
Baku eP =5m.47s., S =7m.22s., L =8m.6s.
Grozny eP =5m.49s., eS =7m.37s., e =14m.22s.
Piatigorsk eP =5m.56s.
Ksara 6m., M =16m.
Sotchi eP =6m.26s.
Frunse eP =6m.36s., e =9m.21s. and 10m.52s.
Almata e =6m.47s.
Semipalatinsk e =7m.40s.
Sverdlovsk P =7m.41s., S =11m.10s., L_q =13m.24s., Lz =15m.54s., M =16m.24s.
Moscow e =8m.4s. and 13m.3s., eL =14m.30s., M =15m.18s.
Bombay eE =12m., eN =13m., M =17m.35s.
Calcutta eE =15m.35s., iE =20m.6s.
Long waves were also recorded at Pulkovo.

Dec. 3d. Readings also at 0h. (Bombay and Calcutta), 1h. (near Medan), 2h. (near La Paz), 3h. (Adelaide, Melbourne, Perth, Riverview, Arapuni, and Wellington), 6h. (near Manila and near Wellington), 7h. (Leipzig and near Mizusawa), 9h. (Leipzig), 10h. (Samarkand), 12h. (Calcutta), 13h. (near Santiago), 15h. (Sumoto, near New Plymouth, and Wellington), 17h. (Frunse and Tacubaya), 19h. (Frunse, near Andijan, and near Mizuaswa), 20h. (near Santiago), 21h. (Andijan, Frunse, Erevan, Grozny, Piatigorsk, Samarkand, and Tchimkent), 23h. (Andijan, Samarkand, Tchimkent, and near Tashkent).

Dec 4d. 22h. 26m. 23s. Epicentre 22°·0S. 170°·2E. (as on 1936 Nov. 29d.). X.

$$A = -\cdot 9137,\ B = +\cdot 1578,\ C = -\cdot 3746\ ;\qquad \delta = +7\ ;$$
$$D = +\cdot 170,\ E = +\cdot 985\ ;\qquad G = +\cdot 369,\ H = -\cdot 064,\ K = -\cdot 927.$$

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Arapuni		16·8	165	—	—	e 7 1	+ 4	—	—
New Plymouth		17·4	170	e 3 37?	−22	—	—	9·6	—
Apia		19·0	67	4 19	0	—	—	—	—
Wellington		19·7	170	4 27	+ 1	8 17	+17	10·6	12·6
Riverview	E.	20·5	231	e 4 36	+ 1	i 8 27	+11	e 10·1	12·5
	N.	20·5	231	e 4 39	+ 4	i 8 31	+15	e 10·1	11·9
Sydney		20·5	231	e 2 1	?	—	—	11·9	12·6
Christchurch		21·6	176	i 4 45a	− 1	8 47	+ 9	10·8	12·7
Melbourne		26·8	229	5 47	+11	10 27	+15	13·4	16·4
Adelaide		30·5	237	e 5 41	−28	e 11 8	− 4	—	17·7
Perth		49·0	247	15 47	S	(15 47)	0	—	35·6
Vladivostok		74·0	332	—	—	e 21 3	− 5	32·8	—
Pasadena	Z.	88·2	52	e 12 33	−16	—	—	—	—
Mount Wilson	Z.	88·3	52	e 12 32	−17	—	—	—	—
Calcutta	N.	91·3	294	e 14 23	+80	i 24 4	− 4	—	—
Bombay		103·5	285	—	—	e 24 37?	[− 6]	—	—
La Paz		111·1	119	e 28 37	PS	—	—	72·6	81·0
Sverdlovsk		118·9	323	—	—	e 41 13	SS	52·6	—

For Notes see next page.

NOTES TO Dec. 4d. 22h. 26m. 23s.

Additional readings :—
Arapuni i = +9m.37s.
Apia PP = +4m.38s., SS = +8m.37s.?
Wellington PP = +4m.57s., i = +5m.55s , SS = +9m.58s.
Christchurch L_q = +9·3m.
Melbourne e = +10m.13s.
Adelaide e = +7m.7s. =PP +4s. and +8m.40s., i = +14m.17s.
Perth e = +22m.47s. and +24m.37s.
Vladivostok e = +20m.11s.
Mount Wilson eZ = +12m.48s., iZ = +13m.21s.
Long waves were also recorded at Tiflis and Tucson.

Dec. 4d. Readings also at 1h. (Rotorua), 3h. (Cheb, Vladivostok, Batavia, near Malabar (2), and near Chiufeng), 4h. (Sverdlovsk, Tiflis, Tashkent, and near Mizusawa), 6h. (near Branner), 9h. (near Samarkand), 13h. (near Mizusawa and near Santiago), 15h. (near Berkeley (2), Branner, Lick, San Francisco (2), and near Nagoya), 16h. (Rotorua, near Berkeley, Branner, Lick, and San Francisco), 19h. (Almata, Andijan, Frunse, Samarkand, Semipalatinsk, and Tchimkent), 20h. (near Branner), 23h. (Arapuni, New Plymouth, Wellington, Adelaide, Riverview, and near Mizusawa).

Dec. 5d. 0h. 37m. 50s. Epicentre 23°·0S. 74°·5W. N.3.

A = +·2460, B = −·8870, C = −·3907 ; δ = −7 ;
D = −·964, E = −·267 ; G = −·104, H = +·376, K = −·920.

Doubtful. Probably deep focus.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Montezuma	5·2	87	e 1 10?	− 4	—	—	—	—
La Paz	8·8	44	i 2 9k	+ 4	i 2 52	−52	—	4·4
Huancayo	11·0	356	e 2 28	− 7	4 13	−25	4·9	—
Santiago	11·0	163	e 4 6	+91	6 45	S_g?	—	—
La Plata	18·7	133	4 16	+ 1	7 28	−12	9·6	—
Rio de Janeiro	28·8	95	—	—	(e 10 10)	−35	e 10·2	—
San Juan	42·2	11	e 7 44	− 6	12 57	−72	—	—
St. Louis	63·4	346	i 10 17	−11	e 18 27	−33	—	—
Tucson	65·3	327	(e 10 42)	+ 1	—	—	e 10·7	—
Oak Ridge	65·6	3	i 10 22	−20	—	—	—	—
Riverside	70·1	323	e 11 18	+ 7	—	—	—	—
Mount Wilson	70·6	323	i 11 20k	+ 6	—	—	—	—
Pasadena	70·6	323	i 11 19k	+ 5	—	—	—	—
Haiwee	72·0	324	i 11 27	+ 4	—	—	—	—
Tinemaha	72·9	324	i 11 32	+ 4	—	—	—	—
Toledo	90·8	46	i 12 36	−25	e 23 4	[−33]	—	—

Additional readings :—
Huancayo sP = +2m.53s., e = +3m.5s., +3m.32s., +3m.37s., +4m.4s., S = +4m.22s., sS = +4m.43s.
San Juan e = +12m.50s. and +15m.50s.
St. Louis eE = +10m.18s., eEN = +10m.35s., ipPEN = +10m.41s., isSEN = +19m.7s., iN = +19m.10s.
Oak Ridge i = +10m.46s.
Mount Wilson iZ = +11m.44s.
Pasadena iZ = +11m.44s. and +11m.54s.
Tinemaha iZ = +11m.55s.
Toledo pPZ = +13m.11s., PPSE = +25m.2s

Dec. 5d. Readings also at 2h. (Tucson), 4h. (Mount Wilson, Pasadena, Tinemaha, Huancayo, and near La Paz), 5h. (Christchurch and Wellington), 6h. (Tucson), 8h. (near Santiago), 14h. (Christchurch, Wellington, Riverview, Perth, La Paz, and near San Javier), 18h. (Arapuni, San Javier, Grozny, near Erevan, and Tiflis), 19h. (Apia, Christchurch, Wellington, New Plymouth, Adelaide, Melbourne, Riverview, Sydney, Perth, Huancayo, Bombay, Sverdlovsk, Mount Wilson, Pasadena, and near Berkeley (2)), 20h. (Baku, Tashkent, and Tiflis), 22h. (Adelaide, Christchurch, Wellington, Riverview, Mount Wilson, Pasadena, and near Malabar), 23h. (Apia, Adelaide, Christchurch, Wellington, Perth, Riverview, Tucson, Mount Wilson, Pasadena, and near Santiago).

Dec. 6d. Readings at 2h. (Riverview, Christchurch, Wellington (2). Mount Wilson, Pasadena, and Tinemaha), 3h. (Mount Wilson, Pasadena, and Tinemaha), 5h. (Göttingen and Jena), 6h. (Batavia and Manila), 10h. (Soengei Langka), 12h. (Apia), 14h. (near Wellington), 15h. (near Santiago), 16h. (Balboa Heights).

Dec. 7d. Readings at 3h. (Agra, Florence, and Jersey), 6h. (Calcutta), 7h. (Agra and Jersey), 8h. (near Samarkand), 9h. (near Sverdlovsk), 11h. (San Javier), 13h. (Frunse, Tashkent, Tchimkent, near Andijan, and Samarkand), 15h. (Grozny and near Sumoto), 16h. (Calcutta, Hong Kong, Phu-Lien, and Manila), 18h. (near Branner), 19h. (Tacubaya), 21h. (Calcutta, Tashkent, Sverdlovsk, Vladivostok, Pulkovo, Husan, Keizyo, Zi-ka-wei, Nanking, Hong Kong, and Hukuoka B), 22h. (Andijan and Copenhagen).

Dec. 8d. 10h. 24m. 26s. Epicentre 10°·2N. 125°·7E. N.3.

$A = -\cdot5743$, $B = +\cdot7992$, $C = +\cdot1771$; $\delta = -9$;
$D = +\cdot812$, $E = +\cdot584$; $G = -\cdot104$, $H = +\cdot144$, $K = -\cdot984$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		6·4	314	i 1 30a	− 1	1 36	−67	—	—
Palau		9·1	107	4 1	S	(4 1)	+10	—	—
Hong Kong	N.	16·4	319	3 44k	− 2	6 56	+ 8	8·4	11·4
Phu-Lien		21·2	302	e 4 39	− 3	e 8 40	+10	—	—
Zi-ka-wei	Z.	21·4	350	e 4 44	0	8 38	+ 4	11·7	17·2
Kagosima		21·8	11	4 56	+ 7	—	—	—	—
Miyazaki		22·4	13	5 3	+ 8	9 5	+12	—	—
Tomie		22·6	7	5 1	+ 4	9 1	+ 4	—	—
Nanking		22·8	344	e 5 0	+ 1	9 8	+ 7	11·3	13·2
Kumamoto		23·1	10	5 4	+ 2	—	—	—	—
Hukuoka B		23·8	10	e 5 41	+33	e 10 2	SS	—	—
Koti		24·4	16	5 19	+ 5	9 22	− 8	—	—
Batavia		24·9	230	i 5 19	0	9 50	+11	—	—
Siomisaki		25·0	21	5 31	+11	—	—	—	—
Husan		25·1	5	—	—	e 9 52	+ 9	—	—
Wakayama		25·5	18	5 32	+ 7	9 59	+ 9	—	—
Nagoya		27·0	21	e 5 45	+ 7	6 54?	?	—	—
Medan		27·6	258	5 45	+ 1	—	—	—	—
Oiwake		28·6	21	6 3	+10	—	—	—	—
Chiufeng		31·1	346	e 6 14	− 1	i 11 17	− 4	13·5	21·3
Perth		43·2	192	16 34	S	(16 34)	SS	—	—
Adelaide		46·8	165	—	—	e 15 14	− 2	—	28·5
Kodaikanal	E.	47·4	275	e 8 34?	+ 2	—	—	—	—
Agra	E.	47·9	297	e 8 30	− 5	15 20	−11	—	—
Tashkent		58·3	313	e 9 56	+ 4	i 17 46	− 7	e 29·2	35·3
Sverdlovsk		68·0	328	e 11 2	+ 4	e 19 57	0	33·6	36·7
Baku		72·6	309	e 15 46	PPP	—	—	35·6	41·3
Tiflis		76·5	311	e 11 46	− 3	e 21 34	− 3	e 39·6	46·5
Ksara		84·2	303	i 12 30	+ 1	e 22 55	− 4	—	—

Additional readings :—
Hong Kong PP = +3m.51s., SS = +7m.7s., P_cP = +7m.54s.
Batavia SE? = +8m.16s.
Chiufeng iN = +7m.35s.
Adelaide e = +19m.39s. = SSSS − 2s.
Agra eSSE = +18m.19s., SSSE = +19m.28s.
Ksara ePS = +23m.44s., eSS = +28m.43s.
Long waves were also recorded at Keizyo, Copenhagen, Stuttgart, De Bilt, Hyderabad, Edinburgh, Strasbourg, and Paris.

Dec. 8d. 20h. 16m. 6s. Epicentre 36°·5N. 138°·5E. (as on 1936 Jan. 13d.). X.

A = −·6021, B = +·5327, C = +·5948 ; δ = +8 ;
D = +·663, E = +·749 ; G = −·446, H = +·394, K = −·804.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Nagoya		1·9	223	0 24	− 4	0 46	− 3	1·6
Toyooka		3·1	252	0 45	+ 1	1 16	− 4	1·4
Kobe		3·3	237	e 0 48	+ 1	e 1 22	− 3	1·7
Sumoto	N.	3·6	234	0 57	+ 6	e 1 36	+ 4	—
	Z.	3·6	234	0 52	+ 1	e 1 52	S_g	—
Hukuoka B		7·2	249	2 56	S	(2 56)	− 8	—

Sumoto eN = +2m.27s.

Dec. 8d. Readings also at 0h. (Andijan, Frunse, and near Almata), 1h. (Medan), 2h. (Rotorua), 3h. (near Sofia), 4h. (La Paz (2), Sofia, Mizusawa, and Rathfarnham Castle), 5h. (near Santiago), 6h. (Balboa Heights, Pasadena, and Tinemaha), 9h. (Huancayo (2), La Paz (2), Pasadena (2), Mount Wilson, Tinemaha (2), and San Juan), 10h. (Copenhagen, De Bilt, Bozeman, Tucson, and La Plata), 11h. (Batavia), 12h. (near Mizusawa), 13h. (Manila, Tashkent, Andijan, Frunse, and near Almata), 14h. (Adelaide, Perth, Batavia, Sverdlovsk, and Ksara), 17h. (Haiwee, Mount Wilson, Pasadena, Tinemaha, and Manila), 19h. (New Plymouth and Wellington), 20h. (near Berkeley and near Sofia), 21h. (near Branner), 22h. (near Bucharest and Sofia (2)), 23h. (Malabar and near Batavia).

Dec. 9d. Readings at 1h. (near Christchurch), 3h. (Malabar), 4h. (Graz and near Florence), 7h. (Chur (2), Graz (2), Padova, Florence (3), Stuttgart, Vienna (2), Zurich (2), and near Zagreb (3)), 8h. (Andijan, Tiflis, and Ksara), 9h. (Andijan and near Berkeley), 11h. (Almeria), 14h. (Agra, Bombay, Calcutta, Hyderabad, Kodaikanal, Andijan, Frunse, and Tashkent), 15h. (Frunse, Tashkent, Sverdlovsk, and near Andijan), 17h. (Oak Ridge), 18h. (Riverview, Nagoya, and near Mizusawa), 21h. (Malabar), 22h. (near Berkeley), 23h. (near Erevan).

Dec. 10d. 12h. 14m. 31s. Epicentre 33°·7N. 135°·2E. (as on 1936 Nov. 25d.). X.

A = −·5903, B = +·5862, C = +·5548 ; δ = −11.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Sumoto	0·7	338	i 0 8k	− 2	i 0 14	− 4	0·2
Kobe	1·0	359	0 13a	− 1	i 0 23	− 3	0·4
Toyooka	1·9	350	0 28	0	0 49	0	—
Nagoya	2·0	45	e 0 31	+ 2	0 57	S*	—

Toyooka ePN = +31s., ePE = +35s.

Dec. 10d. 13h. 25m. 54s. Epicentre 34°·5N. 140°·0E. (as on 1936 Oct. 25d.). R.2.

Very near the position suggested by Japanese stations 34°·4N. 140°·1E.

A = −·6313, B = +·5297, C = +·5664 ; δ = −7 ;
D = +·643, E = +·766 ; G = −·434, H = +·364, K = −·824.

Correction for depth of focus 0·0125 has been applied.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.
Mera	+0·3	0·4	342	0 9k	− 1	0 20	+ 2	—
Katuura	+0·3	0·7	22	0 12	− 2	0 21	− 5	—
Suzaki	+0·3	0·8	281	0 16k	0	0 29	+ 1	—
Ito	+0·3	0·9	302	0 15	− 2	0 31	0	—
Kamakura	+0·3	0·9	336	0 14	− 3	0 29	− 2	—

Continued on next page.

	Corr. for Focus	Δ	Az.	P.	O–C.	S.	O–C.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.
Misima	+0·3	1·0	305	0 19k	+ 1	0 36	+ 3	—
Yokohama	+0·3	1·0	343	0 16k	− 2	0 33	0	—
Numadu	+0·3	1·1	302	0 18k	− 2	0 35	− 1	—
Komaba	+0·3	1·2	347	0 17	− 4	0 35	− 4	—
Mitaka	+0·3	1·2	342	0 19	− 2	0 37	− 2	—
Tokyo	+0·3	1·2	350	0 19	− 2	0 37	− 2	0·6
Tokyo I.U.	+0·3	1·2	350	0 19	− 2	0 37	− 2	—
Hatidyozima	+0·3	1·4	185	0 18a	− 6	0 33	−11	—
Hunatu	+0·3	1·4	314	0 22k	− 2	0 43	− 1	—
Omaesaki	+0·2	1·5	274	0 25k	+ 1	0 48	+ 4	—
Tyosi	+0·2	1·5	30	0 17a	− 7	0 35	− 9	—
Kakioka	+0·2	1·7	5	0 23a	− 5	0 47	− 2	—
Kohu	+0·2	1·7	314	0 25a	− 3	0 49	0	—
Kumagaya	+0·2	1·7	343	0 26k	− 2	0 50	+ 1	—
Tukubasan	+0·2	1·7	3	0 24	− 4	0 47	− 2	—
Hamamatu	+0·2	1·9	277	0 31k	+ 1	0 58	+ 4	—
Mito	+0·2	1·9	12	0 28	− 2	0 54	0	—
Iida	+0·2	2·0	300	0 33k	+ 2	0 57	0	—
Maebasi	+0·2	2·0	338	0 31	0	0 58	+ 1	—
Utunomiya	+0·2	2·1	357	0 30	− 3	0 55	− 4	—
Oiwake	+0·2	2·2	327	0 34k	0	1 3	+ 1	—
Matumoto	+0·2	2·4	316	0 37k	0	1 10	+ 3	—
Nagano	+0·2	2·6	326	0 40a	0	1 13	+ 1	—
Nagoya	+0·2	2·6	285	0 38	− 2	1 26	+14	1·9
Gihu	+0·2	2·8	289	0 43k	0	1 33	+16	—
Takayama	+0·2	2·8	306	0 44	+ 1	1 28	+11	—
Tu	+0·2	2·8	275	0 49	+ 6	—	—	—
Kameyama	+0·1	2·9	277	0 45	+ 2	1 21	+ 4	—
Takada	+0·1	3·0	331	0 52	+ 8	1 23	+ 3	—
Ibukisan	+0·1	3·1	287	0 48	+ 2	1 24	+ 2	—
Aidu	+0·1	3·1	2	0 52k	+ 6	1 27	+ 5	—
Hikone	+0·1	3·2	284	0 49k	+ 2	1 28	+ 3	—
Toyama	+0·1	3·2	314	0 48	+ 1	1 33	+ 8	—
Hukusima	+0·1	3·3	7	0 45	− 4	—	—	—
Husiki	+0·1	3·3	315	0 57	+ 8	1 37	+10	—
Kanazawa	+0·1	3·4	307	1 0	+10	1 45	+15	—
Niigata	+0·1	3·5	349	1 6	+15	1 35	+ 3	—
Siomisaki	+0·1	3·6	254	0 56	+ 3	1 36	+ 1	—
Osaka	+0·1	3·7	274	0 52	− 2	1 47	+10	—
Wazima	+0·1	3·8	318	0 56	0	1 42	+ 2	—
Yamagata	+0·1	3·8	5	0 50	− 6	1 33	− 7	—
Sendai	+0·1	3·9	10	0 51	− 6	1 40	− 2	—
Kobe	+0·1	4·0	274	0 59k	+ 1	e 1 13	−32	2·6
Wakayama	+0·1	4·0	269	0 50k	− 8	1 37	− 8	—
Isinomaki	+0·1	4·1	15	1 38	+38	2 0	+12	—
Sumoto E.	+0·1	4·2	269	1 2k	+ 1	1 55	+ 5	2·4
Sumoto N.	+0·1	4·2	269	e 1 0k	− 1	e 1 48	− 2	2·1
Toyooka	0·0	4·3	285	1 3	+ 2	1 24	−26	2·6
Mizusawa E.	0·0	4·8	11	e 1 7	− 1	i 2 0	− 3	—
Mizusawa N.	0·0	4·8	11	e 1 11	+ 3	1 58	− 5	—
Morioka	0·0	5·3	10	1 12	− 3	2 10	− 5	—
Hatinoke	0·0	6·2	11	1 21	− 7	2 27	−11	—
Aomori	0·0	6·4	5	1 32	+ 1	2 43	0	—
Titizima	−0·1	7·6	166	1 55	+ 9	—	—	—
Kumamoto	−0·1	7·9	260	1 54a	+ 3	3 51	+32	—

Additional readings :—
Kobe SE = +1m.44s.
Toyooka PN = +1m.9s

Dec. 10d. Readings also at 0h. (near Erevan, near New Plymouth, and Wellington), 3h. and 4h. (La Paz), 5h. (Nanking and near Nagoya), 7h. (near Tashkent), 12h. (Pasadena and Tinemaha), 13h. (near Balboa Heights), 15h. (Tashkent and near Andijan), 16h. (Balboa Heights and Mizusawa), 18h. (Andijan, Tchimkent, and Malabar).

Dec. 11d. 17h. Earthquake probably in Italy :—
Marseilles iP_g =25m.43s., S_g =26m.5s., 26m.11s., 26m.17s., e =26m.20s.
Chur eP =26m.0s.
Zurich eP =26m.2s., eS_g =26m.52s.
Basle eP =26m.4s., e =26m.15s., eS_g =27m.3s.
Besançon e =26m.8s , eL =27m.0s.
Florence eP =26m.11s., L =26m.52s.
Strasbourg e =27m., eS_g =27m.42s.
Stuttgart eP_g =27m.15s.

Dec. 11d. Readings at 0h. (Rotorua), 6h. (Ksara, Erevan, and Tiflis), 9h. (near Berkeley, Branner, Lick, and San Francisco), 10h. (La Paz, Tacubaya, and near Nagoya), 12h. (La Paz), 16h. (Tacubaya), 17h. (La Plata), 20h. (Fresno, near Christchurch, New Plymouth, and Wellington), 21h. (near Manila).

Dec. 12d. Readings at 1h. (Pasadena, Mount Wilson, and New Plymouth), 2h. (Mount Wilson, Pasadena, Tinemaha, Oak Ridge, San Juan, Ksara, and New Plymouth), 3h. (Port au Prince, Wellington, and near Medan), 4h. (Marseilles and near Santiago), 8h. (Baku, Frunse, Samarkand, Tashkent, Sverdlovsk, Andijan, Manila, Batavia, and Sydney), 9h. (Andijan), 11h. (San Javier and near Santiago), 12h. (Andijan, Frunse, and near Samarkand), 17h. (Sofia, La Paz (2), Haiwee, Mount Wilson, and Pasadena).

Dec. 13d. 16h. 10m. 44s. Epicentre 4°·0S. 128°·3E. (as on 1935 March 16d.). X.

A = −·6183, B = +·7829, C = −·0698 ; δ = +10 ;
D = +·785, E = +·620 ; G = +·043, H = −·055, K = −·997.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Manila		20·0	338	i 4 25	− 5	5 50	?	—	—
Batavia		21·5	263	4 50	+ 5	e 8 44	+ 8	—	—
Perth		30·3	201	11 16?	S	(11 16?)	+ 7	—	—
Chiufeng		45·5	347	e 8 19	+ 2	15 0	+ 3	—	—
Calcutta	N.	47·1	307	e 8 51	+22	—	—	—	—
Vladivostok		47·3	4	—	—	e 14 22	−61	—	—
Andijan		67·8	317	e 11 6	+ 9	—	—	—	—
Tashkent		70·2	317	e 11 9	− 3	i 20 21	− 3	—	35·3
Sverdlovsk		81·4	329	12 34	+19	e 23 9	+38	40·3	—
Baku		83·8	311	—	—	(e 22 58)	+ 3	e 23·0	—
Tiflis		87·9	312	e 12 57	+10	e 23 32	− 4	—	—
Ksara		94·2	303	e 13 30	+13	e 24 30	− 5	—	—
Tinemaha	z.	111·0	51	i 18 55	PP	—	—	—	—
Mount Wilson	z.	111·7	54	i 18 57	PP	—	—	—	—
Pasadena	z.	111·7	54	i 18 56	PP	—	—	—	—

Additional readings :—
Batavia iE = +10m.3s.
Vladivostok e = +15m.18s. and +18m.47s.
Sverdlovsk PP = +15m.54s., SS = +28m.4s.
Ksara ePP = +17m.4s., ePS = +25m.30s.

Dec. 13d. 18h. 27m. 3s. Epicentre 39°·3N. 70°·5E. (as on 1936 Dec. 2d.). X.

The stations suggest 39°·0N. 70°·3E.

	Δ	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Andijan	2·0	45	e 0 29	0	i 0 51	0	2·2
Tashkent	2·2	336	e 0 27	− 4	i 1 13	S_g	1·6
Samarkand	2·8	278	0 33	− 7	1 15	+ 3	2·0
Frunse	4·7	39	e 1 9	+ 2	e 2 2	+ 2	—
Almata	6·2	49	e 1 49	P*	e 3 20	S_g	—

Additional readings :—
Andijan iP_g = +33s., iPP = +37s. and +41s., i = +47s. and +57s., S_g = +1m.5s.
Samarkand e = +54s.
Frunse eP_g = +1m.23s., eS_g = +2m.11s., e = +2m.29s. and +2m.39s.
Long waves were also recorded at Semipalatinsk and Sverdlovsk.

Dec. 13d. 21h. 30m. 52s. Epicentre 13°·6N. 145°·4E. N.1.

A = −·8001, B = +·5519, C = +·2351 ; δ = +3 ;
D = +·568, E = +·823 ; G = −·194, H = +·134, K = −·972.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Palau		12·4	241	2 53	− 1	—	—	—	—
Titizima		13·8	348	3 17	+ 4	—	—	—	—
Nake		20·9	318	4 39	0	8 40	+16	—	—
Mera		21·9	347	4 45	− 5	8 52	+ 8	—	—
Miyazaki		22·3	327	4 56	+ 2	8 49	− 3	—	—
Numadu		22·3	345	4 56	+ 2	—	—	—	—
Simidu		22·3	331	4 52	− 2	8 56	+ 4	—	—
Misima		22·3	345	4 52	− 2	—	—	—	—
Yokohama		22·4	348	4 51	− 4	8 54	+ 1	—	—
Kagosima		22·5	324	4 58	+ 2	—	—	—	—
Tyosi		22·5	351	4 56	0	9 1	+ 6	—	—
Wakayama		22·6	338	4 56k	− 1	9 3	+ 6	—	—
Hunatu		22·7	345	4 56	− 2	9 0	+ 1	—	—
Kameyama		22·7	342	5 2	+ 4	8 58	− 1	—	—
Koti		22·7	334	4 57	− 1	9 8	+ 9	—	—
Sumoto		22·7	338	i 4 57k	− 1	9 6	+ 7	—	9·3
Tokyo		22·7	348	4 57	− 1	9 11	+12	—	—
Kohu		22·9	345	5 2	+ 2	9 14	+11	—	—
Nagoya		22·9	344	e 5 0	0	—	—	9·2	—
Osaka		22·9	339	5 2	+ 2	—	—	—	—
Iida		23·0	345	5 1	0	—	—	—	—
Kobe		23·0	339	5 0k	− 1	e 8 55	−10	—	14·3
Gihu		23·1	344	5 3	+ 1	9 5	− 2	—	—
Kyoto		23·1	341	5 2	0	—	—	—	—
Tukubasan		23·1	351	4 59	− 3	9 2	− 5	—	—
Hikone		23·2	344	5 6	+ 3	—	—	—	—
Kumagaya		23·2	348	5 1	− 2	9 21	+13	—	—
Matuyama		23·3	334	5 3k	− 1	9 14	+ 4	—	—
Kumamoto		23·4	328	5 3k	− 2	—	—	—	—
Maebasi		23·5	348	5 8	+ 3	9 16	+ 2	—	—
Okayama		23·5	339	5 5	0	9 18	+ 4	—	—
Matumoto		23·6	345	5 8	+ 2	—	—	—	—
Oiwake		23·6	345	5 5	− 1	—	—	—	—
Unzendake		23·6	327	5 6	0	9 39	+23	—	—
Manila		23·7	276	i 5 9a	+ 2	i 9 19	+ 1	11·1	—
Nagasaki		23·8	327	5 10	+ 2	—	—	—	—
Nagano		23·9	346	5 11	+ 2	9 33	+12	—	—
Toyooka	N.	23·9	337	5 7	− 2	9 28	+ 7	—	—
Hukuoka		24·2	329	5 11	− 1	9 0	−27	—	—
Hukuoka B		24·2	329	5 11	− 1	e 9 28	+ 1	—	—
Toyama		24·2	345	5 10	− 2	9 38	+11	—	—
Tomie		24·3	324	5 13	0	9 17	−11	—	—
Aidu		24·4	350	5 41	+27	—	—	—	—
Takada		24·4	347	5 46	+32	—	—	—	—
Hamada		24·5	333	5 14	− 1	9 31	− 1	—	—
Hukusima		24·5	350	5 14	− 1	9 42	+10	—	—
Karenko		24·8	298	5 19	+ 1	—	—	—	—
Taito		24·8	296	5 20	+ 2	9 41	+ 4	—	—
Kosyun		24·9	294	5 24	+ 5	—	—	—	—
Sendai		25·0	353	5 34	+14	—	—	—	—
Wazima		25·0	345	4 57	−23	—	—	—	—
Yamagata		25·1	353	5 26	+ 5	—	—	—	—
Taihoku		25·2	301	e 5 31	+ 9	e 9 58	+14	—	—
Mizusawa		25·8	353	e 5 31	+ 4	e 9 53	− 2	13·3	—
Husan		26·1	328	5 29	− 1	e 7 6	?	10·2	—

Continued on next page

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Akita		26·5	352	5 42	+ 8	10 6	− 1	—	—
Taityu		26·9	298	5 28	− 9	9 51	−23	—	—
Zi-ka-wei	z.	28·2	313	5 44	− 5	10 24	−11	i 15·1	21·7
Keizyo		29·0	329	5 57	+ 1	e 10 16	−32	—	—
Zinsen		29·1	328	—	—	e 10 8?	−42	—	—
Nanking		30·5	311	i 6 10	+ 1	i 11 10	− 2	13·7	—
Hong Kong		30·9	291	6 19	+ 6	11 17	− 1	—	17·3
Vladivostok		31·7	342	e 6 18	− 2	e 11 25	− 6	16·4	21·1
Chiufeng		36·9	322	7 3k	− 3	12 45	− 5	i 15·2	26·3
Phu-Lien		37·6	287	e 7 13	+ 1	12 58	− 2	—	—
Batavia		43·1	245	7 55	− 3	13 17	−65	—	—
Riverview		47·8	173	e 8 26	− 9	e 15 44	+14	e 21·8	26·5
Sydney		47·8	173	e 11 32	PPPP?	—	—	23·1	24·4
Adelaide		49·0	187	e 9 53	+69	i 15 38	− 9	—	32·6
Melbourne		51·4	180	—	—	i 16 24	+ 4	—	—
Perth		53·6	211	9 8	−10	i 16 43	− 7	24·3	27·1
Honolulu		54·4	73	e 13 58	?	—	—	—	—
Calcutta		54·7	288	e 9 27	+ 1	17 2	− 3	e 27·3	—
Wellington		61·2	155	10 16	+ 3	18 28	− 4	28·1	36·1
Christchurch		62·3	158	i 10 23a	+ 3	i 18 48	+ 2	30·6	—
Semipalatinsk		63·8	320	e 10 13	−18	—	—	—	—
Agra	E.	63·9	294	i 10 25	− 6	18 54	−12	—	—
Colombo		64·7	271	10 26	−11	19 34	+18	—	36·9
Kodaikanal	E.	66·4	276	e 10 8?	−40	—	—	—	—
Frunse		66·8	311	e 10 34	−17	—	—	—	—
Andijan		68·4	309	e 10 27	−34	—	—	—	—
Bombay		69·4	285	11 7	0	20 7	− 7	—	—
Tashkent		70·7	310	e 11 10	− 5	i 20 20	−10	e 34·1	40·0
Samarkand		72·5	307	e 11 8	−18	—	—	—	—
Sverdlovsk		75·8	326	i 11 55	+10	21 34	+ 5	34·1	45·4
Berkeley		83·5	53	e 12 27	+ 1	—	—	—	—
Baku		85·3	311	e 12 33	− 2	i 23 1	[0]	43·6	51·9
Fresno	N.	85·7	53	e 12 38	+ 1	—	—	—	—
Santa Barbara		86·3	56	e 12 42	+ 2	—	—	—	—
Tinemaha		86·8	53	i 12 44	+ 2	—	—	—	—
Haiwee		87·2	53	i 12 46	+ 2	—	—	—	—
Grozny		87·6	314	e 13 36	+50	—	—	47·1	—
Pasadena		87·6	55	i 12 47k	+ 1	i 23 29	− 4	—	—
Mount Wilson		87·7	55	i 12 48k	+ 2	—	—	—	—
Riverside		88·3	55	e 12 51	+ 2	—	—	—	—
Moscow		88·5	327	e 12 39	−11	e 23 9	[−14]	42·1	49·2
La Jolla		88·7	57	i 12 53	+ 2	—	—	—	—
Tiflis		88·7	313	e 12 45	− 6	e 23 41	− 3	e 45·1	58·2
Erevan		89·4	311	e 16 1	PP	—	—	—	—
Pulkovo		90·3	333	12 54	− 5	e 23 48	−11	44·1	54·9
Tucson		94·0	55	e 13 20	+ 4	e 24 20	−13	e 42·6	—
Scoresby Sund		95·5	356	17 14	PP	—	—	47·1	—
Ksara		98·0	307	e 13 25	− 9	—	—	—	—
Copenhagen		100·3	335	17 38	PP	26 8?	?	50·1	—
Hamburg		102·8	334	—	—	e 31 8?	SS	—	—
Helwan		103·1	305	i 18 14	PP	—	—	—	—
Cheb		104·2	331	e 12 8?	?	—	—	—	72·1
De Bilt		105·9	336	e 18 32	PP	e 33 39	SS	e 48·1	67·6
Stuttgart		106·6	331	e 18 37	PP	—	—	e 54·1	66·1
Uccle		107·2	335	e 18 41	PP	e 28 14	?	e 49·1	—
Strasbourg		107·4	332	e 20 8?	PPP	e 29 8?	?	e 42·1	—
Paris		109·5	334	e 19 0	PP	—	—	58·1	65·1
Toledo		119·4	333	—	—	i 25 18	[−30]	64·1	—
San Juan		135·4	45	e 21 44	PP	—	—	e 61·9	—
Huancayo		140·3	93	e 19 38	[+16]	—	—	e 65·1	—
La Paz		147·5	99	i 19 40k	[+ 2]	26 26	SKS	73·1	83·3
Rio de Janeiro		167·6	140	e 25 8	PP	—	—	—	—

For Notes see next page.

NOTES TO DEC. 13d. 21h. 30m. 52s.

Additional readings :—
Kobe iNZ = +5m.2s., eSZ = +8m.58s., SSZ = +9m.11s., SSN = +9m.14s.
Toyooka PE = +5m.9s., PZ = +5m.13s.
Mizusawa eSE = +10m.9s.
Zi-ka-wei PPZ = +6m.34s., iZ = +7m.14s.
Nanking PP = +7m.0s., eE = +13m.12s.
Chiufeng PPNZ = +8m.16s
Riverview eEN = +11m.2s.
Adelaide e = +14m.8s. and +19m.23s.
Perth SP = +17m.18s., SS = +20m.28s.
Honolulu eSS = +21m.16s.
Calcutta e = +8m.57s., SSN = +21m.10s., SSSN = +23m.7s.
Christchurch sS = +22m.54s., L_q = +26·3m.
Agra ePPE = +12m.53s., ePPPE = +14m.4s., eSSE = +23m.8s., SSSE = +25m.9s.
Andijan e = +10m.42s.
Baku PP = +15m.53s., PPP = +18m.33s., SS = +29m.44s., SSS = +35m.8s.
Grozny i = +15m.5s., e = +17m.13s.
Moscow PP = +15m.44s., SS = +29m.26s.
Tiflis eN = +12m.53s. and +17m.4s., eE = +19m.58s., eSKSN = +23m.11s., eSSSE = +33m.2s.
Pulkovo PP = +16m.33s., PPP = +18m.32s., PS = +24m.58s., SS = +29m.38s., SSS = +35m.20s.
Tucson ePS = +25m.44s., eSS = +31m.8s., eSSS = +34m.50s., e = +38m.50s.
Scoresby Sund = +26m.2s.
Ksara i = +17m.40s., iPS = +25m.54s.
Copenhagen SS = +32m.20s.
Helwan i = +19m.38s., +27m.14s., and +28m.13s.
Huancayo ePP = +22m.32s., ePKS = +22m.56s., e = +30m.44s., +36m.2s., and +41m.26s.
De Bilt eN = +27m.56s.
Stuttgart ePPS = +28m.50s.
Uccle eSSE = +33m.56s.
Toledo SKKSE = +26m.31s., SKKKSE = +26m.41s., PPSN = +30m.46s., SSN = +35m.52s., PKP,PKPEN = +37m.35s.
San Juan ePS = +32m.32s.
La Paz iZ = +19m.52s. and +21m.27s., iPPZ = +23m.17s.
Long waves were also recorded at Philadelphia, Kew, Bidston, San Fernando, Göttingen, Prague, Zagreb, Graz, and Upsala.

Dec. 13d. Readings also at 4h. (Andijan), 7h. (Andijan and Samarkand), 9h. (near Nagoya), 11h. (near Manila), 12h. (Mount Wilson, Pasadena, and Tinemaha), 13h. (Tacubaya), 15h. (Grozny, near Erevan, and Tiflis), 19h. (Andijan, Samarkand, Frunse, and near San Javier), 20h. (Frunse, Samarkand, and near Andijan), 21h. (Wellington), 22h. (Erevan, near Grozny, and Tiflis).

Dec. 14d. 4h. 3m. 40s. Epicentre 13°·3N. 120°·4E. (as on 1933 Sept. 28d.). **R.2.**

$A = -·4924$, $B = +·8394$, $C = +·2300$; $\delta = -5$;
$D = +·863$, $E = +·506$; $G = -·116$, $H = +·198$, $K = -·973$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Manila	1·4	24	i 0 23k	P_g	i 0 41	S_g	—	—
Kosyun	8·7	2	2 4	+ 1	—	—	—	—
Taito	9·5	4	2 19	+ 5	4 20	+19	—	—
Arisan	10·2	3	2 25	+ 1	—	—	—	—
Hong Kong	10·8	328	2 22a	−10	5 18	S*	—	10·2
Karenko	10·8	6	2 33	+ 1	—	—	—	—
Palau	15·1	112	3 37	+ 7	—	—	—	—
Phu-Lien	15·1	302	i 3 23	− 7	e 6 10	− 7	7·3	—
Nake	17·3	28	3 56	− 2	—	—	—	—
Zi-ka-wei	17·9	3	e 3 59	− 6	7 17	− 5	10·5	14·6
Nanking	18·8	356	e 4 12	− 4	i 7 43	+ 1	9·2	—
Kagosima	20·5	26	4 38	+ 3	—	—	—	—
Nagasaki	21·3	23	4 45	+ 2	8 20	−12	—	—
Kumamoto	21·7	24	4 45	− 3	—	—	—	—
Hukuoka B	22·2	23	4 36	−17	7 54	−56	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Husan		23·2	18	e 5 3	0	e 9 7	− 1	—	—
Medan		23·5	248	5 3	− 2	i 9 25	+11	—	—
Koti		23·6	29	5 11	+ 5	9 27	+11	—	—
Batavia		23·7	215	5 10	+ 3	9 31	+13	—	—
Wakayama		24·8	31	5 25	+ 7	—	—	—	—
Keizyo		25·0	13	e 5 13	− 7	e 9 38	− 3	e 12·9	—
Osaka		25·5	30	5 37	+12	—	—	—	—
Kameyama		26·0	32	5 32	+ 3	—	—	—	—
Hikone		26·2	31	5 31	0	—	—	—	—
Nagoya		26·5	32	e 4 56	−38	6 3	?	—	—
Gihu		26·6	31	5 39	+ 4	10 37	+28	—	—
Chiufeng		27·1	352	5 32a	− 7	i 10 4	−13	i 11·7	14·9
Oiwake		28·2	32	6 7	+18	—	—	—	—
Nagano		28·3	31	6 11	+21	—	—	—	—
Calcutta	N.	31·8	292	e 5 45	−36	11 23	− 9	15·8	21·4
Colombo		40·4	265	7 38	+ 3	13 41	− 1	20·0	25·0
Hyderabad		40·6	282	7 34	− 3	13 40	− 5	17·2	25·2
Agra	E.	41·9	296	e 7 38	−10	13 49	−16	—	—
Perth		45·5	185	14 50	S	(14 50)	− 7	—	—
Bombay		46·0	284	i 8 20	− 1	i 14 54	−10	—	—
Frunse		49·2	316	e 8 43	− 2	e 15 39	−11	—	—
Semipalatinsk		49·4	328	e 8 44	− 3	—	—	—	—
Andijan		50·0	313	e 8 48	− 3	e 15 43	−18	—	—
Tashkent		52·4	313	e 9 7	− 2	(e 16 20?)	−14	e 16·3	32·9
Samarkand		53·6	310	e 9 20	+ 2	—	—	—	—
Sverdlovsk		62·6	328	—	—	e 19 45	+55	28·8	39·4
Baku		66·6	309	i 10 50	+ 1	i 19 36	− 4	32·3	44·5
Grozny		69·8	312	e 11 10	+ 1	—	—	45·3	—
Tiflis		70·5	311	e 11 18	+ 4	e 20 18	− 9	e 35·3	47·5
Erevan		70·8	308	e 11 8	− 8	—	—	—	—
Piatigorsk		71·7	312	e 11 18	− 3	—	—	—	—
Moscow		75·0	325	e 11 37	− 3	e 21 3	−17	37·8	44·6
Theodosia		77·2	314	e 11 49	− 4	—	—	—	—
Yalta		78·0	313	e 11 49	− 8	—	—	—	—
Ksara		78·1	302	i 11 58k	0	e 21 50	− 5	—	49·8
Pulkovo		78·6	329	11 57	− 3	21 44	−16	40·3	46·9
Scoresby Sund		92·3	349	—	—	23 20?	[−26]	50·3	—
Toledo		106·0	319	—	—	e 26 11	{+33}	40·8	54·8
San Juan		147·6	12	e 19 44	[+ 6]	—	—	—	—
Huancayo		164·6	88	e 20 4	[+ 5]	e 32 2	{+19}	e 76·9	—
Montezuma		167·2	138	—	—	e 34 20?	SKSP	—	—
La Paz		171·2	113	e 29 26?	PPP	—	—	90·3	106·1

Additional readings :—
Hong Kong ? = +4m.23s.
Zi-ka-wei iZ = +4m.9s.
Osaka i = +6m.52s.
Chiufeng iPPNZ = +6m.5s.
Agra PPPE = +9m.17s., SSE = +16m.55s.
Bombay iE = +10m.2s. and +18m.28s.
Tashkent e = +9m.49s., +10m.29s., and +14m.18s.
Tiflis eSSN = +25m.28s., eSSSE = +28m.18s., eN = +33m.3s.
Ksara ePS = +22m.32s., eSS = +29m.2s.
Toledo SSN = +33m.26s.
Huancayo e = +35m.53s., eSS = +44m.20s., e = +48m.26s.
La Paz PN = +37m.4s.
Long waves were also recorded at Christchurch, Copenhagen, Paris, De Bilt, Strasbourg, San Fernando, Prague, Hamburg, and Stuttgart.

Dec. 14d. 10h. 5m. 40s. Epicentre 41°·5N. 45°·5E. (as on 1936 May 9d.). X.

$A = +·5250$, $B = +·5342$, $C = +·6626$; $\delta = +3$;
$D = +·713$, $E = -·701$; $G = +·464$, $H = +·473$, $K = -·749$.

Stations of the Caucasus give 41°·2N. 45°·7E.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Tiflis	0·6	292	i 0 16	+ 7	—	—	i 0·5	—
Erevan	1·5	225	0 19	− 2	i 0 37	− 2	—	0·8
Grozny	1·8	6	0 47	S	(0 47)	+ 1	—	1·8
Piatigorsk	3·1	325	e 0 49	P*	e 1 19	− 1	—	1·7
Sotchi	4·7	298	e 1 19	P*	—	—	—	—
Ksara	10·8	228	e 3 18	+46	—	—	—	6·0

Additional readings :—
Erevan e = +24s. and +32s.
Grozny e = +59s. and +1m.9s., S_g = +1m.18s., e = +1m.25s.
Piatigorsk e = +1m.32s. and +1m.37s.
Sotchi e = +1m.49s., +1m.55s., +1m.59s., and +2m.5s.

Dec. 14d. Readings also at 1h. (Huancayo, La Paz, and Montezuma), 2h. (Haiwee, Mount Wilson, Pasadena, Tinemaha, Andijan, and Samarkand), 4h. (Haiwee, Mount Wilson (2), Pasadena (2), Tinemaha (2), Kodaikanal, Nagoya, and near Sumoto), 6h. (Oaxaca, Tacubaya, Mount Wilson, Tinemaha, and Kodaikanal), 7h. (Medan), 9h. (Santiago, Frunse, Andijan, and near Almata), 17h. (San Juan), 18h. (Grozny, Piatigorsk, near Erevan (2), Sotchi, and near San Javier), 20h. (Christchurch, Mount Wilson, and Pasadena), 21h. (Andijan, Samarkand, Ksara (2), Sebastopol, Simferopol, near Theodosia, Yalta, and Tiflis).

Dec. 15d. Readings at 0h. (Rio de Janeiro), 13h. (near Manila), 16h. (near Sotchi), 17h. (near Berkeley and near Sotchi), 18h. (Nanking, near Taihoku, near Amboina, near Kobe, and Sumoto), 19h. (Florence), 21h. (Andijan), 22h. (Ukiah).

Dec. 16d. Readings at 0h. (Ukiah), 5h. (Erevan, Piatigorsk, Tiflis, and near Grozny), 6h. (Tacubaya), 7h. (La Paz, Mount Wilson, Pasadena, Tinemaha, and Prague), 11h. (near Berkeley and Branner), 12h. (Huancayo and La Paz), 13h. (College and Tacubaya), 16h. (Malabar), 17h. (Andijan and Samarkand), 19h. (Riverview, Christchurch, and Wellington), 22h. (Cheb).

Dec. 17d. Readings at 3h. (Adelaide, Riverview, Sydney, Christchurch, Arapuni, Apia, Wellington, and Huancayo), 4h. (Perth, Tucson, La Paz, and Sverdlovsk), 5h. (Baku, Tiflis, and Ksara), 7h. (near Santiago), 8h. (Yalta and near Wellington), 10h. (near Samarkand), 11h. (near Batavia and Malabar), 12h. (La Paz and Mizusawa), 13h. (Andijan, Frunse, Samarkand, Apia (2), Adelaide, Perth, Riverview, Sydney, Huancayo, and Christchurch), 14h. (Hong Kong, Tashkent, Baku, Sverdlovsk, La Paz, Riverview, and Huancayo), 15h. (near Santiago), 18h. (Batavia, near Malabar, Andijan, and near Samarkand), 21h. (Apia, Christchurch, Riverview, Sydney, Perth, Huancayo, Bucharest, Samarkand, and near Andijan), 22h. (Baku, Sverdlovsk, Tiflis, and near Berkeley), 23h. (Riverview).

Dec. 18d. Readings at 2h. (La Paz), 3h. (near Manila), 4h. (near Andijan), 5h. (Huancayo, San Juan, Tucson, Frunse, Samarkand, and near Andijan), 10h. (Melbourne, Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, and near Santiago), 11h. (Little Rock), 15h. (Calcutta and Kodaikanal), 17h. (Tacubaya), 18h. (Huancayo), 19h. (near Mizusawa), 21h. (Medan),

Dec. 19d. 2h. 57m. 34s. Epicentre 27°·6S. 66°·3W. (as on 1929 Nov. 18d.). X.

A = +·3562, B = −·8115, C = −·4633; δ = +6;
D = −·916, E = −·402; G = −·186, H = +·424, K = −·886.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Santiago		7·0	211	1 34	− 5	2 32	−27	—	—
San Javier		9·3	208	2 15	+ 4	3 45	−11	—	—
La Plata		10·2	137	2 25	+ 1	4 15	− 3	4·8	—
La Paz	N.	11·2	350	2 44	+ 7	i 4 44	+ 1	i 5·6	6·5
Huancayo		17·7	330	e 3 54	− 9	e 7 15	− 2	e 10·8	—
San Juan		45·9	0	—	—	e 18 8	SS	—	—
Tacubaya	N.	56·7	322	11 37	PP	—	—	—	—
Mount Wilson	Z.	78·8	319	i 11 49	−12	—	—	—	—
Pasadena	Z.	78·8	319	e 11 49	−12	—	—	—	—
Tinemaha	Z.	81·0	319	i 12 0	−13	—	—	—	—

Additional readings :—
La Paz iN = +5m.18s.
Huancayo PP = +4m.2s., PPP = +4m.17s., e = +5m.40s., iS = +7m.20s.
Mount Wilson eZ = +12m.30s.
Pasadena eZ = +12m.29s.
Tinemaha iZ = +12m.44s.

Dec. 19d. Readings also at 0h. (near New Plymouth), 3h. (Andijan and near Santiago), 4h. (near La Paz), 8h. (San Juan and Santiago), 10h. (Adelaide, Melbourne, Riverview, Perth, Batavia, and Medan), 11h. (Helwan and Theodosia), 12h. (Santiago), 15h. (near Batavia and Malabar), 17h. (Sebastopol, Simferopol, Theodosia, Yalta, and near Branner), 21h. (East Machias), 22h. (near Santiago).

Dec. 20d. 2h. 43m. 27s. Epicentre 13°·2N. 88°·7W. N.3.

A = +·0221, B = −·9733, C = +·2284; δ = −3;
D = −1·000, E = −·023; G = +·005, H = −·228, K = −·974.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Oaxaca	N.	8·6	297	2 5	+ 3	—	—	—	—
Balboa Heights		9·9	114	i 2 23	+ 4	e 4 45	S*	—	—
Puebla	N.	10·9	304	2 34	+ 1	—	—	—	—
Tacubaya	N.	11·8	303	2 48	+ 2	—	—	—	—
Guadalajara	N.	15·9	300	3 50?	+10	—	—	—	—
Little Rock		21·8	352	i 4 46	− 3	8 35	− 7	e 10·4	—
Columbia		21·9	17	e 4 48	− 2	e 8 46	+ 2	e 11·1	—
San Juan		22·3	74	4 57	+ 3	8 55	+ 3	e 12·2	—
St. Louis		25·5	357	e 5 22	− 3	i 9 45	− 5	e 11·9	13·5
Florissant		25·6	357	e 5 23	− 2	e 9 47	− 4	e 12·8	14·8
Georgetown		27·7	21	e 5 46	+ 2	e 10 28	+ 1	—	—
Tucson		27·9	317	e 5 48	+ 2	e 10 35	+ 5	e 14·6	—
Huancayo		28·5	151	5 49	− 3	10 43	+ 3	12·8	—
Chicago		28·6	0	—	—	e 10 37	− 5	e 13·0	—
Pennsylvania		29·2	17	—	—	e 11 53	+62	—	18·0
Philadelphia		29·3	22	e 6 0	+ 1	e 10 54	+ 1	e 14·6	—
Ann Arbor		29·4	8	—	—	9 39	−76	14·7	17·8
Madison		29·9	359	—	—	e 10 33?	−30	—	—
Denver	E.	30·1	334	e 5 30	−36	e 10 41	−25	—	—
Toronto		31·5	13	—	—	e 11 27	− 1	e 14·5	—
Ithaca		31·9	17	—	—	e 13 29	SSS	e 16·0	—
Oak Ridge		32·8	24	6 27	− 3	e 11 57	+ 9	e 17·0	—
Weston		32·8	24	i 6 38	+ 8	11 48	0	—	—
Riverside		33·3	313	i 6 30	− 4	—	—	—	—
Mount Wilson	Z.	33·9	313	i 6 37	− 2	—	—	—	—

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Pasadena	33·9	313	i 6 37	− 2	e 13 22	+78	e 14·5	—
Ottawa	34·0	16	—	—	e 12 3	− 3	e 14·5	—
Vermont	34·0	20	6 45	+ 5	e 12 4	− 2	16·5	—
Santa Barbara	35·2	312	e 6 51	0	—	—	—	—
Tinemaha	35·6	317	i 6 56	+ 2	—	—	—	—
La Paz	36·0	144	7 4	+ 6	e 12 46	+10	18·6	23·0
Lick	36·2	315	i 7 19	+19	—	—	—	—
Bozeman	37·6	334	—	—	e 12 57	− 3	e 21·7	—
Butte	38·6	333	—	—	e 13 14	− 1	e 17·6	—
Ukiah	40·0	317	—	—	e 13 33	− 3	e 19·5	—
Victoria	45·4	328	—	—	e 14 50	− 6	e 21·5	—
La Plata	56·3	149	—	—	17 21	− 6	33·1	—
Rio de Janeiro	57·2	128	—	—	e 17 33	− 6	e 27·0	—
Toledo	77·5	52	e 11 52	− 3	e 21 40	− 8	—	43·8
Granada	78·2	54	e 12 27	+29	—	—	—	—
Stuttgart	85·2	41	—	—	e 23 3	− 7	e 39·5	51·5
Cheb	86·8	39	—	—	e 22 33?	[−39]	e 45·5	48·0
Pulkovo	92·3	26	e 20 19	PPPP	e 23 0	[−46]	39·5	54·3
Moscow	97·8	27	e 20 29	PPPP	27 25	?	47·0	56·1
Sverdlovsk	106·2	17	e 18 41	PP	e 28 9	PS	43·5	59·9
Ksara	109·4	47	e 19 11	PP	e 28 49	PS	52·0	—
Tiflis	110·4	35	e 19 50	PP	—	—	e 51·5	69·0
Tashkent	121·8	19	e 9 42	?	e 22 7	PP	e 54·5	67·5
Chiufeng	122·0	338	i 39 46	P′P′	—	—	e 56·5	68·4
Riverview	122·2	239	—	—	e 32 57	?	e 35·2	36·6
Nanking	127·6	331	e 30 57	PS	i 38 9	SS	63·8	—

Additional readings :—
Little Rock iPPPEN = +5m.14s., iP$_c$PEN = +8m.50s., iSSSEN = +9m.5s., eEN = +9m.20s.
Columbia ePP = +5m.12s., S = +8m.53s.
San Juan ePP = +5m.16s., ePPP = +5m.30s., eS = +8m.42s., SS = +9m.55s., e = +10m.38s. and +11m.2s.
St. Louis iPEN = +5m.24s., iPPEN = +5m.53s., iPPPEN = +6m.6s., iSSEN = +10m.24s., iSSSEN = +10m.33s.
Florissant iPNZ = +5m.25s., i = +5m.37s., ePP = +5m.47s., iPPNEZ = +5m.49s., eSZ = +9m.53s., iS = +9m.56s., i = +10m.18s.
Tucson i = +10m.52s.
Huancayo e = +6m.0s., PP = +6m.33s., e = +6m.40s., ePPP = +7m.16s., e = +8m.17s., S = +10m.51s., +11m.13s., eSS = +12m.10s.
Chicago e = +10m.2s.
Philadelphia i = +11m.43s., +14m.24s.
Ann Arbor e = +11m.51s., eE = +13m.3s., eN = +13m.33s.
Denver iE = +6m.54s., eE = +7m.26s. and +13m.31s.
Oak Ridge iN = +6m.29s., e = +6m.40s., iN = +6m.50s., iE = +6m.55s., iZ = +7m.9s., eE = +14m.11s. and +15m.5s.
Vermont eSS = +14m.2s.
Tinemaha i = +8m.17s.
La Paz iPPZ = +8m.27s., iSEZ = +12m.50s.
Ukiah e = +16m.57s. =SSSS +3s.
Victoria e = +18m.19s.
Rio de Janeiro eN = +17m.3s.
Toledo PSN = +22m.10s., SSSE = +29m.34s., PKP,PKSE = +42m.51s., SKKKSEN = +43m.10s.
Pulkovo e = +21m.34s., +26m.0s., and +28m.7s.
Tiflis ePSE = +28m.29s., eSSN = +34m.36s., eSSSE = +39m.57s.
Tashkent e = +31m.48s., +41m.51s., and +49m.33s.
Long waves were also recorded at Baku, Wellington, Christchurch, Scoresby Sund, Honolulu, Hong Kong, Cape Town, Sitka, Berkeley, Seattle, Kodaikanal, and other European stations.

Dec. 20d. 13h. 23m. 23s. Epicentre 13°·2N. 88°·7W. (as at 20d. 2h.). X.

A = +·0221, B = −·9733, C = +·2284 ; δ = −3.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Little Rock		21·8	352	e 4 44	− 5	e 8 59	+17	—	—
Columbia		21·9	17	—	—	e 8 43	− 1	—	—
San Juan		22·3	74	—	—	e 8 49	− 3	—	—
St. Louis		25·5	357	e 5 45	+20	e 10 7	+17	e 16·7	—
Tucson		27·9	317	e 5 49	+ 3	e 10 36	+ 6	e 14·6	—
Huancayo		28·5	151	e 9 11	?	e 10 48	+ 8	e 16·3	—
Riverside	Z.	33·3	313	i 6 37	+ 3	—	—	—	—
Mount Wilson	Z.	33·9	313	e 6 36	− 3	—	—	—	—
Pasadena		33·9	313	e 6 39	0	—	—	e 16·1	—
Tinemaha	Z.	35·6	317	e 6 53	− 1	—	—	—	—
Rio de Janeiro		57·2	128	—	—	22 37?	SS	—	—

Additional readings :—
Little Rock eN = +4m.53s., iEN = +4m.58s.
St. Louis eN = +9m.53s. and +10m.24s.
Huancayo e = +11m.35s., eSS = +12m.14s., e = +13m.7s.
Long waves were also recorded at Balboa Heights, La Paz, and other American stations.

Dec. 20d. 18h. 29m. 33s. Epicentre 5°·7S. 103°·8E. (as on 1925 July 17d.). R.2.

A = −·2374, B = +·9663, C = −·0993 ; δ = −5 ;
D = +·971, E = +·239 ; G = +·024, H = −·096, K = −·995.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Soengei Langka		1·4	78	i 0 41	+21	i 1 4	+28	—	—
Batavia		3·1	101	i 0 42	− 2	i 1 16	− 4	—	—
Malabar		4·1	112	i 0 56	− 2	i 1 37	− 8	—	—
Medan		10·6	331	e 2 44	+15	i 5 18	S*	—	—
Manila		26·5	40	5 36	+ 2	10 33	+26	—	—
Phu-Lien		26·6	6	e 5 37	+ 2	e 10 50	+41	—	—
Colombo		27·0	297	5 38	0	10 24	+ 9	14·4	16·0
Perth		28·6	158	5 2	−51	e 9 17	−85	—	16·4
Hong Kong		29·8	20	6 0	− 3	11 29	+28	15·7	19·0
Kodaikanal	E.	30·7	301	i 6 17	+ 6	i 11 24	+ 8	15·2	17·9
Calcutta	N.	32·0	333	6 31	+ 8	11 41	+ 6	e 15·2	—
Bombay		39·2	311	7 25	0	13 30	+ 6	19·4	—
Nanking		40·4	20	e 7 36	+ 1	13 46	+ 4	18·4	25·6
Zi-ka-wei	Z.	40·5	22	e 7 37	+ 1	—	—	23·4	25·1
Agra	E.	41·2	325	7 41	− 1	13 56	+ 2	—	—
Adelaide		43·4	136	—	—	i 14 8	−19	e 21·9	28·0
Chiufeng		47·1	12	8 25a	− 4	15 15	− 5	—	32·1
Melbourne		49·3	136	8 52	+ 6	i 15 42	− 9	25·0	32·1
Riverview		52·1	130	i 16 20	S	(i 16 20)	−10	e 28·8	32·7
Sydney		52·1	130	—	—	e 15 49	−41	32·4	33·7
Andijan		54·7	331	9 26	0	17 8	+ 3	—	—
Vladivostok		55·0	25	e 9 27	− 2	e 17 10	+ 1	29·4	37·4
Frunse		55·3	335	e 9 30	− 1	17 12	− 1	—	—
Tashkent		56·6	330	i 9 40	0	17 26	− 5	e 25·4	37·0
Tchimkent		57·2	331	9 45	0	17 39	0	—	—
Semipalatinsk		59·7	344	e 10 3	+ 1	—	—	—	—
Baku		67·5	318	e 11 0	+ 5	19 55	+ 4	33·8	39·3
Christchurch		70·8	134	i 20 14	S	(i 20 14)	−17	38·6	—
Erevan		71·1	317	e 11 12	− 5	—	—	—	—
Grozny		71·6	320	e 11 22	+ 2	e 21 11	+31	—	—
Sverdlovsk		71·6	336	i 11 32	+12	i 20 49	+ 9	32·4	46·4
Tiflis		71·6	318	i 11 18	− 2	20 38	− 2	e 38·4	48·4
Piatigorsk		73·7	320	e 11 32	− 1	—	—	—	—
Ksara		75·2	307	i 11 41a	0	i 21 27	+ 5	36·0	—
Sotchi		75·7	318	e 11 37	− 7	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Theodosia		79·1	318	e 12 2	− 1	—	—	—	—
Yalta		79·8	318	e 12 6	− 1	22 6	− 8	—	—
Sebastopol		80·2	317	e 12 10	+ 1	—	—	—	—
Simferopol		80·8	318	e 12 8	− 4	e 22 23	− 1	—	—
Toledo		107·3	310	—	—	26 16	{+29}	—	—
Tinemaha	z.	130·5	44	i 19 7	[− 1]	—	—	—	—
Pasadena		131·9	47	e 19 8	[− 2]	—	—	—	—
Mount Wilson	z.	132·0	47	i 19 10	[0]	—	—	—	—
Riverside	z.	132·6	47	i 19 11	[0]	—	—	—	—
St. Louis		144·7	18	i 19 31	[− 2]	—	—	—	—
Little Rock	N.	147·3	25	i 19 36	[− 2]	—	—	—	—
La Paz		156·4	200	21 4	[+75]	i 30 47	{−11}	50·3	85·2
San Juan		164·0	323	—	—	e 24 39	PP	—	—

Additional readings :—
Malabar i = +1m.59s.
Medan iE = +5m.35s. and +6m.0s., iN = +6m.17s.
Hong Kong ? = +6m.37s., PP? = +7m.14s., ? = +11m.0s., SS = +13m.39s.
Kodaikanal iSSE = +13m.6s.
Bombay PPPEN = +9m.2s., SSSEN = +16m.31s.
Agra iE = +14m.19s., eSSE = +17m.11s., SSSE = +18m.14s.
Adelaide eS? = +17m.7s.
Chiufeng PPEN = +10m.18s.
Melbourne i = +18m.29s. and +19m.27s.
Riverview eN = +18m.47s.
Christchurch eSEN = +28m.15s., L_qE = +35·2m.
Tiflis i = +11m.20s., iPSE = +21m.3s., SKSE = +21m.37s., SSE = +25m.43s., SSSN = +28m.49s.
Toledo PSN = +28m.39s., PPSE = +29m.51s., PKKSE = +33m.48s., SSSN = +38m.36s.
Tinemaha iZ = +22m.30s. and +22m.45s.
Pasadena ePPZ = +21m.28s., eSKPZ = +22m.33s., i = +22m.37s.
Mount Wilson ePPZ = +21m.19s., iZ = +22m.32s.
Riverside iZ = +22m.55s.
St. Louis iEN = +20m.0s., eN = +23m.54s.
Little Rock iEN = +19m.53s.
San Juan e = +29m.51s.
Long waves were also recorded at Rio de Janeiro, Cape Town, Pulkovo, and Bidston.

Dec. 20d. Readings also at 0h. and 2h. (Santiago), 3h. (Santiago (3), Mount Wilson, Pasadena, Riverside, and Tinemaha), 6h. (Medan and near Strasbourg), 7h. (Guadalajara, Oaxaca, Puebla, Tacubaya, Tucson, La Jolla, Mount Wilson, Pasadena, Riverside, and Tinemaha), 8h. (East Machias and Mizusawa), 9h. (San Juan), 10h. (near Medan), 13h. (Mount Wilson and Pasadena), 14h. (Balboa Heights), 17h. (near Tananarive), 19h. (Huancayo, La Paz, Mount Wilson, Pasadena, Riverside, and Tinemaha), 21h. (Tananarive).

Dec. 21d. 19h. 3m. 18s. Epicentre 52°·9N. 131°·6W. N.2.

A = −·4005, B = −·4511, C = +·7976 ; δ = +6 ;
D = −·748, E = +·644 ; G = −·530, H = −·596, K = −·603.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Sitka		4·6	385	1 4	− 2	—	—	—	—
Victoria		6·9	127	1 42	+ 4	3 9	+13	3·6	—
Seattle		7·9	128	e 2 45	P_g	e 3 53	S*	e 4·0	—
Ferndale	E.	13·3	155	e 3 17	+11	e 5 58	+24	—	—
	N.	13·3	155	e 3 22	+16	e 5 12	−22	—	—
Butte		14·0	111	—	—	6 3	+12	7·5	—
College		14·5	332	e 3 54	+32	e 6 55	+52	8·0	—
Ukiah		14·9	154	e 3 24	− 3	e 6 7	− 6	e 6·6	—
Saskatoon		15·1	84	e 3 32	+ 2	—	—	e 7·7	—
Bozeman		15·2	110	e 3 31	0	e 6 20	0	8·0	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Berkeley		16·4	153	e 3 49	+ 3	e 6 56	+ 8	—	—
San Francisco		16·4	154	e 3 54	+ 8	—	—	—	—
Branner		16·8	153	e 3 57	+ 5	—	—	—	—
Lick		17·0	151	e 3 59	+ 5	e 7 1	− 1	—	—
Fresno	N.	18·1	147	e 4 11	+ 3	—	—	—	—
Tinemaha		18·3	143	e 4 11	+ 1	e 7 48	+17	—	—
Haiwee		19·3	143	i 4 23	+ 1	e 8 13	+21	—	—
Santa Barbara		20·3	148	i 4 34	+ 1	e 8 34	+22	—	—
Pasadena		21·0	146	i 4 39a	− 1	i 8 40	+14	—	—
Mount Wilson		21·0	146	i 4 40a	0	—	—	—	—
Riverside		21·4	146	i 4 43a	− 1	—	—	—	—
Denver		22·4	115	e 4 50	− 5	e 9 4	+11	c 11·9	12·8
La Jolla		22·5	145	i 4 57	+ 1	e 9 9	+14	—	—
Tucson		25·5	134	e 5 25	0	e 10 4	+14	e 13·4	—
Des Moines		27·7	98	—	—	e 10 42	+15	e 14·3	—
Madison		29·4	91	—	—	e 11 18	+23	e 15·9	—
Chicago		31·2	93	—	—	e 11 29	+ 6	16·3	—
Florissant		31·4	99	e 6 16	− 1	e 11 31	+ 5	—	37·3
St. Louis		31·6	99	e 6 17	− 2	e 11 30	+ 1	—	18·2
Little Rock	E.	33·0	107	e 6 33	+ 1	e 12 2	+11	—	19·2
Ann Arbor		33·3	88	e 7 48	PPP	e 12 6	+11	i 17·3	20·5
Toronto		35·1	83	e 7 0	+10	e 12 39	+16	17·7	—
Buffalo		35·8	83	i 7 0	+ 4	e 12 48	+15	e 17·9	—
Ottawa		36·3	78	e 7 0	0	12 52	+11	18·7	—
Honolulu		37·4	222	e 7 12	+ 2	e 12 57	0	18·3	—
Pennsylvania		37·7	86	—	—	e 15 35	SS	19·9	22·1
Seven Falls		38·3	73	7 24	+ 6	13 24	+13	—	—
Vermont		38·3	78	—	—	e 13 24	+13	i 19·5	—
Philadelphia		39·8	85	i 9 2	PP	i 13 45	+12	i 20·0	—
Columbia		40·2	96	e 8 57	PP	e 13 44	+ 5	e 20·3	—
Weston		40·7	79	e 7 37	− 1	—	—	—	21·6
East Machias		41·6	74	e 9 11	PP	e 13 58	− 2	i 22·0	—
Ivigtut		42·9	45	9 48	PPP	14 37	+18	21·7	—
Scoresby Sund		46·8	26	—	—	19 6	SSS	22·7	—
Vladivostok		60·3	303	e 9 52	−15	18 13	− 7	—	39·1
San Juan		60·7	97	—	—	e 18 28	+ 3	e 30·0	—
Rathfarnham Castle		64·5	33	—	—	e 26 58	SSSS	30·7	40·7
Kew		67·9	31	—	—	e 28 30	SSSS	31·7	41·3
Sverdlovsk		69·8	353	—	—	e 20 36	+17	26·7	42·3
Chiufeng		70·2	312	11 5a	− 7	20 20	− 4	e 32·8	46·0
Strasbourg		72·8	27	i 11 29k	+ 1	—	—	e 33·7	—
Stuttgart		73·0	26	e 11 36	+ 7	e 29 54	?	e 39·7	—
Prague		73·1	22	e 19 12	?	e 29 30	SSSS	e 41·7	68·7
Zurich		74·2	27	e 11 38	+ 2	—	—	—	—
Nanking		75·4	305	e 11 39	− 4	i 21 22	− 3	—	46·2
Toledo		76·7	39	e 11 48	− 2	e 21 19	−20	—	—
Granada		79·3	40	e 11 41	−23	—	—	41·7	—
Huancayo		80·7	124	12 7	− 5	e 22 19	− 4	—	—
Grozny		83·8	3	e 12 24	− 3	—	—	—	—
Tashkent		84·1	345	—	—	e 22 52	− 7	—	57·0
Tiflis		85·3	3	e 12 35	0	e 23 10	− 1	e 39·2	—
Baku		86·7	0	12 42	0	23 19	− 5	40·9	56·0
Erevan		86·9	4	e 12 33	−10	—	—	—	—
La Paz	N.	88·2	120	12 48	− 1	i 23 36	− 3	47·1	52·4
Manila		88·5	293	16 0	PP	23 38	− 4	—	—
Ksara		92·6	10	i 13 10k	+ 1	—	—	44·7	—
Agra	E.	95·9	333	e 26 30	PS	—	—	—	—
Calcutta	N.	97·0	323	e 17 20	PP	i 24 11	[0]	—	60·3
Bombay		105·2	336	e 15 42?	?	—	—	—	—
Rio de Janeiro		106·1	105	e 18 42?	[+37]	—	—	—	—
Kodaikanal	E.	112·2	329	e 17 42?	[−42]	—	—	—	—

Continued on next page.

NOTES TO DEC. 21d. 19h. 3m. 18s.

Additional readings :—
Sitka i = +1m.21s.
Seattle e = +3m.34s.
Ferndale eE = +3m.56s., +4m.54s., and +6m.52s.
College e = +7m.5s.
Ukiah ePPP = +3m.53s., e = +4m.15s., eSS = +6m.18s.
Bozeman eSS = +6m.32s
Berkeley eZ = +3m.55s., eE = +4m.53s. and +6m.49s., eSEN = +6m.59s.
Lick eSE = +7m.9s.
Pasadena iP_cPZ = +8m.6s.
Mount Wilson iP_cPZ = +8m.6s.
Riverside iP_cPZ = +8m.11s.
Denver eN = +4m.54s., iEN = +5m.5s., ePPN = +5m.11s., ePPPE = +5m.35s., eN = +5m.52s., eE = +6m.32s. and +9m.11s., iEN = +9m.22s., eEN = +9m.34s., eSSN = +9m.48s.
Tucson eP = +5m.32s., e = +10m.16s.
Florissant ePN = +6m.17s., iPPPZ = +7m.25s., eZ = +11m.34s., iN = +11m.38s.
St. Louis iPPEN = +7m.9s., iPPPEN = +7m.22s., iSSEN = +13m.8s.
Ann Arbor eSE = +12m.18s., eSSN = +13m.54s.
Buffalo ePP = +8m.17s., e = +9m.10s., eSSS = +15m.22s.
Honolulu eS = +13m.24s., e = +15m.37s. and +16m.9s., i = +18m.47s.
Vermont iS = +13m.31s., eSS = +15m.42s.
Philadelphia e = +16m.40s.
Columbia ePP = +9m.3s., eSS = +16m.25s.
East Machias eS = +14m.9s., e = +17m.22s. and +21m.9s.
Sverdlovsk PS = +21m.2s., SS = +25m.40s.
Chiufeng SN = +20m.23s.
Toledo PSE = +21m.54s.
Huancayo eS = +22m.13s. and +22m.29s., ePS = +22m.53s., e = +25m.2s.
Tashkent e = +22m.26s., i = +22m.55s., e = +25m.8s., SS = +28m.48s., e = +36m.36s.
Ksara iPP = +16m.57s., PS = +25m.39s., ePPS = +26m.17s.
Long waves were also recorded at Halifax, Oak Ridge, Cape Town, Paris, San Fernando, Stonyhurst, Cheb, Edinburgh, Hong Kong, Hyderabad, Sydney, Ithaca, Uccle, De Bilt, La Plata, Pulkovo, and Copenhagen.

Dec. 21d. 19h. 27m. 59s. Epicentre 52°·9N. 131°·6W. (as at 19h.3m.18s.). R.3.

A = −·4005, B = −·4511, C = +·7976 ; δ = +6.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Victoria		6·9	127	—	—	i 3 7	+11	3·5	4·3
Seattle		7·9	128	—	—	e 3 47	S*	i 4·2	—
Ferndale		13·3	155	3 33	+27	e 6 11	+37	—	—
Ukiah		14·9	154	—	—	e 6 25	+12	6·7	—
Saskatoon		15·1	84	e 4 19	+49	e 7 35	+78	8·2	9·4
Bozeman		15·2	110	—	—	e 6 36	+16	e 8·0	—
Berkeley		16·4	153	e 3 44	− 2	e 6 55	+ 7	—	—
San Francisco		16·4	154	e 3 43	− 3	—	—	—	—
Branner		16·8	153	e 3 54	+ 2	e 7 21	+24	—	—
Lick		17·0	151	e 3 51	− 3	e 7 19	+17	—	—
Fresno	N.	18·1	147	e 4 8	0	—	—	—	—
Tinemaha		18·3	143	e 4 11	+ 1	—	—	—	—
Haiwee		19·3	143	i 4 21	− 1	e 8 12	+20	—	—
Santa Barbara		20·3	148	e 4 31	− 2	e 8 31	+19	—	—
Pasadena		21·0	146	i 4 38	− 2	i 8 43	+17	—	—
Mount Wilson		21·0	146	i 4 38	− 2	e 8 35	+ 9	—	—
Riverside		21·4	146	i 4 43	− 1	e 8 41	+ 7	—	—
Denver		22·4	115	e 4 57	+ 2	e 9 1	+ 8	e 10·9	12·0
La Jolla		22·5	145	e 4 55	− 1	e 9 5	+10	—	—
Tucson		25·5	134	e 5 32	+ 7	e 10 9	+19	e 13·6	—
Des Moines		27·7	98	—	—	e 10 35	+ 8	e 13·9	—
Florissant		31·4	99	e 6 20	+ 3	i 11 8	−18	—	16·7
St. Louis		31·6	99	i 5 37	−42	e 10 40	−49	—	—
Little Rock	E.	33·0	107	e 6 38	+ 6	—	—	—	—
Honolulu		37·4	222	—	—	e 15 49	SSSS	18·8	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Columbia		40·2	96	—	—	e 13 46	+ 7	21·1	—
Oak Ridge		40·4	79	c 4 4	?	—	—	i 21·2	—
Weston		40·7	79	e 8 39	+61	—	—	—	11·7
Toledo		76·7	39	i 11 51	+ 1	21 38	− 1	—	—
Huancayo		80·7	124	e 12 1	−11	i 22 26	+ 3	c 43·6	—
Tiflis		85·3	3	e 12 35	0	e 23 14	+ 3	e 39·5	—
Hong Kong		85·8	301	14 9	?	(23 10)	− 6	—	32·4
Ksara		92·6	10	13 13	+ 4	—	—	—	80·5
Wellington		104·9	219	—	—	e 24 1?	[−48]	—	—
Christchurch		107·7	219	e 22 10	PPPP	26 14	{+23}	28·6	—

Additional readings :—
Seattle eS = +3m.56s.
Ferndale eE = +3m.36s. and +4m.43s., eN = +7m.36s.
Berkeley eZ = +3m.48s., eEN = +3m.50s., eE = +7m.9s., eZ = +7m.13s.
Pasadena iP_cPZ = +8m.2s
Riverside iP_cPZ = +8m.2s.
Denver iN = +5m.19s., ePP = +5m.28s., ePPPN = +5m.43s., eE = +9m.12s., eN = +9m.25s., iE = +9m.30s., eSSN = +9m.57s.
Des Moines e = +11m.1s.
St. Louis eN = +13m.14s.
Little Rock eE = +7m.4s.
Honolulu SSS = +16m.34s. and +16m.46s.
Toledo PSE = +21m.38s., SSN = +25m.52s.
Huancayo S = +21m.58s., eS = +22m.11s.
Hong Kong S? = +19m.23s. ; true S is given as SS.
Ksara PS = +25m.38s., PPS = +26m.18s.
Christchurch L_qE = +26m.33s.
Long waves were also recorded at Copenhagen, De Bilt, Scoresby Sund, Ivigtut, and other American and Canadian stations.

Dec. 21d. Readings also at 3h. (Hong Kong, Nanking, and near Manila), 6h. (Mount Wilson, Pasadena, and near Santiago), 8h. (Huancayo, La Paz (2), Mount Wilson, and Pasadena), 12h. (Huancayo, La Paz (2), Rio de Janeiro, Mount Wilson, Pasadena, and Ksara), 13h. (Montezuma), 14h. (Montezuma, La Paz, Mount Wilson, and Pasadena), 17h. (Adelaide, Riverview, Perth, La Jolla, Mount Wilson, Pasadena, Riverside, Santa Barbara, and Tinemaha), 18h. (Almeria and near Nagoya), 19h. (Haiwee (2), Mount Wilson (2), Pasadena (2), Riverside (2), Santa Barbara, and Florissant (2)), 20h. (Mount Wilson (2), Pasadena (2), Riverside, Hong Kong, Mizusawa, Christchurch, Wellington, and Tiflis), 23h. (Amboina).

Dec. 22d. 8h. 30m. 45s. Epicentre 5°·5S. 150°·0E. (as on 1935 Nov. 11d.). X.

A = −·8621, B = +·4978, C = −·0952 ; δ = +8 ;
D = +·500, E = +·866 ; G = +·083, H = −·048, K = −·995.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview		28·4	178	e 8 51	P_cP	e 11 48	SS	e 15·2	18·8
Sydney		28·4	178	—	—	e 10 3	−35	15·0	16·8
Adelaide		31·3	198	e 6 27	+10	e 11 17	− 7	e 16·9	20·0
Melbourne		32·6	187	—	—	e 11 15?	−30	16·2	22·0
Perth		41·4	226	7 35	− 9	13 40	−17	20·2	28·2
Batavia		42·9	269	7 44	−12	17 47	SSS	—	—
Christchurch		43·0	155	7 55	− 2	14 57	+36	22·6	—
Nanking		47·9	323	e 8 46	+11	e 15 27	− 4	e 20·9	—
Chiufeng		55·2	328	e 9 31	+ 1	17 12	0	—	28·2
Calcutta	N.	66·4	297	c 15 59	PPPP	i 19 27	−10	—	—
Pasadena	Z.	94·6	56	i 13 55	+36	—	—	—	—
Mount Wilson	Z.	94·7	56	i 13 56	+37	—	—	—	—
Tinemaha	Z.	94·7	53	i 13 57	+38	—	—	—	—
Ksara		113·0	305	e 18 0	[−27]	e 27 38	{+70}	—	77·8

Additional readings :—
Adelaide e = +7m.25s., +9m.58s., and +13m.48s.
Melbourne i = +14m.27s.
Perth PP = +9m.15s., SS = +15m.55s.
Batavia SE = +18m.1s.
Christchurch L_qE = +18m.56s.
Chiufeng ePZ = +9m.50s.
Ksara e = +19m.51s.
Long waves were also recorded at Tucson.

Dec. 22d. Readings also at 3h. (Alicante), 4h. (Andijan, near Samarkand, and near Tucson), 6h. (Mount Wilson, Pasadena, and Tinemaha), 7h. (Mount Wilson (4) and Pasadena (4)), 8h. (Mount Wilson, Tinemaha, Agra, College, Bombay, Calcutta, and near Hyderabad), 9h. (Mount Wilson, Pasadena, Tinemaha, and Wellington), 10h. (Jersey), 13h. (Jena (2), Cheb (2), and Göttingen (2)), 14h. (Cheb, Jena, and Göttingen), 15h. (near Branner and Medan), 16h. (Andijan, Samarkand, near Tiflis, and near Malabar), 20h. (Perth), 21h. (near Santiago), 22h. (Almeria (3)), 23h. (Almeria, Toledo, and near Granada).

Dec. 23d. 22h. 55m. 44s. Epicentre 37°·1N. 141°·3E. R.2.
(as on 1934 July 26d. and near the position 37°·0N. 141°·13E. given by Tokyo).

$A = -·6225$, $B = +·4987$, $C = +·6032$; $\delta = +6$;
$D = +·625$, $E = +·780$; $G = -·471$, $H = +·377$, $K = -·798$.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Onahama	0·3	242	0 4	0	0 10	+ 2	—	—
Hukusima	0·9	314	0 16k	+ 3	0 29	+ 6	—	—
Mito	0·9	223	0 12	− 1	0 25	+ 2	—	—
Kakioka	1·2	226	0 15a	− 2	0 26	− 5	—	—
Sendai	1·2	344	0 20k	+ 3	0 36	S*	—	—
Utunomiya	1·2	245	0 18	+ 1	0 32	+ 1	—	—
Isinomaki	1·3	0	0 20	+ 2	0 44	+11	—	—
Tukubasan	1·3	227	0 16	− 2	0 27	− 6	—	—
Tyosi	1·4	194	0 18	− 2	0 34	− 2	—	—
Kumagaya	1·8	237	0 24	− 2	0 43	− 3	—	—
Komaba	1·9	222	0 25a	− 3	0 46	− 3	—	—
Maebasi	1·9	249	0 26a	− 2	0 46	− 3	—	—
Tokyo	1·9	221	0 25	− 3	0 45	− 4	—	0·8
Tokyo I.U.	1·9	221	0 24	− 4	0 44	− 5	—	—
Mitaka	2·0	225	0 24	− 5	0 45	− 6	—	—
Mizusawa	2·0	356	0 32	+ 3	i 0 58	S*	—	—
Katuura	2·1	202	0 25	− 5	0 49	− 5	—	—
Yokohama	2·1	219	0 27a	− 3	0 50	− 4	—	—
Kamakura	2·2	218	0 30	− 1	0 56	− 1	—	—
Oiwake	2·3	251	0 34	+ 1	1 1	+ 2	—	—
Takada	2·4	270	0 43	P_g	1 10	S*	—	—
Mera	2·5	209	0 35	− 1	1 9	+ 5	—	—
Nagano	2·5	260	0 37	+ 1	1 7	+ 3	—	—
Hunatu	2·6	233	0 35	− 2	1 2	− 5	—	—
Kohu	2·6	236	0 35	− 2	1 3	− 4	—	—
Misima	2·7	224	0 42	P*	1 9	0	—	—
Ito	2·8	220	0 41a	+ 1	1 11	− 1	—	—
Matumoto	2·8	252	0 39	− 1	1 11	− 1	—	—
Numadu	2·8	225	0 40	0	1 14	+ 2	—	—
Susaki	3·1	218	0 44	0	1 17	− 3	—	—
Iida	3·2	240	0 46	0	1 17	− 5	—	—
Toyama	3·3	263	0 48	+ 1	1 30	+ 5	—	—
Hatinohe	3·4	2	0 50a	+ 1	1 33	+ 6	—	—
Husiki	3·4	266	1 1	P_g	1 40	S*	—	—
Omaesaki	3·5	226	0 53	+ 3	1 42	S*	—	—
Wazima	3·5	280	0 52	+ 2	1 40	S*	—	—
Hamamatu	3·7	233	0 56	+ 3	1 18	−17	—	—
Aomori	3·8	353	0 57	+ 3	1 42	+ 5	—	—
Kanazawa	3·8	264	1 31	S	(1 31)	− 6	—	—
Gihu	4·0	246	0 55	− 2	1 47	+ 5	—	—
Nagoya	4·0	242	0 59	+ 2	1 48	+ 6	—	2·2
Hatidyozima	4·2	198	0 57	− 3	1 39	− 9	—	—
Hikone	4·5	248	1 6	+ 2	1 55	0	—	—
Kameyama	4·5	242	1 5	+ 1	2 1	+ 6	—	—
Tu	4·5	243	1 14	P*	2 7	S*	—	—

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Hakodate	4·7	354	1 25	P_g	2 22	S_g	—	—
Kyoto	4·9	247	1 11	+ 1	—	—	—	—
Osaka B	5·1	244	1 28	P*	2 26	+16	—	—
Urakawa	5·2	12	1 26	P*	2 21	+ 8	—	—
Kobe	5·5	248	e 1 35	P*	2 28	+ 8	—	2·9
Wakayama	5·7	243	1 26	+ 5	2 44	S*	—	—
Siomisaki	5·8	233	2 18	S	(2 18)	−10	—	—
Sumoto	5·8	244	e 1 33	P*	2 35	+ 7	—	2·9
Sapporo	6·0	359	1 26	+ 1	2 47	+14	—	—
Asahigawa	6·7	6	1 44	+ 9	3 5	+14	—	—
Nemuro	7·0	26	1 32	− 7	—	—	—	—
Vladivostok	9·3	313	e 2 14	+ 3	e 4 6	+10	4·9	—

Additional readings :—
Mizusawa SN = +1m.1s.
Kanazawa S = +1m.55s.
Kobe eN = +1m.51s., eEN = +2m.6s.
Sumoto ePEN = +1m.36s., eSZ = +2m.41s.

Dec. 23d. Readings also at 0h. (Almeria (2)), 1h. (Balboa Heights), 4h. (Calcutta), 6h. (Mizusawa, Adelaide, Melbourne, Riverview, Sydney, Perth, Christchurch, and Wellington), 7h. (near Santiago), 8h. (Almeria and Mizusawa), 11h. (near Santiago and near Tiflis), 12h. (Mount Wilson, Pasadena, Santa Barbara, Tinemaha, Chiufeng, Nanking, Mizusawa, Sverdlovsk, Tashkent, and Ksara), 13h. (Baku and Nagoya), 14h. (Mount Wilson, Pasadena, Tinemaha, Chiufeng, Nanking, Vladivostok, Nanking (2), Mizusawa (2), Nagoya (2), Baku, Tashkent, Tiflis, Sverdlovsk, and Ksara), 16h. (Tacubaya), 17h. (La Paz, Lick, and near Fresno), 19h. (near Santiago), 21h. (Rotorua, Medan, Soengei-Langka, near Batavia, and Malabar), 22h. (Tiflis).

Dec. 24d. 13h. 49m. 24s. Epicentre 34°·6N. 135°·3E. (as on 1932 May 5d.). X.

$A = -\cdot5851$, $B = +\cdot5790$, $C = +\cdot5678$; $\delta = -2$.

	△	Az.	P.	O−C.	S.	O−C.	M.
	°	°	m. s.	s.	m. s.	s.	m.
Kobe	0·1	311	i 0 1	0	0 3	0	0·1
Sumoto	0·4	234	i 0 3_a	− 3	i 0 6	− 4	0·2
Toyooka	1·0	337	0 15	+ 1	0 28	+ 2	0·5
Nagoya	1·5	67	0 29	+ 8	0 50	+11	—
Hukuoka B	4·2	257	1 10	P*	2 4	S*	—

Toyooka gives also iZ = +21s.

Dec. 24d. Readings also at 1h. and 2h. (Cheb), 3h. (Rotorua), 4h. (Erevan, Grozny, Sotchi, near Platigorsk, and Tiflis), 6h. (Pasadena, Mount Wilson, Tinemaha, Huancayo, La Paz, and near Santiago), 8h. (Batavia and Malabar), 9h. (Huancayo, La Paz, and near Sotchi), 10h. (Sverdlovsk, Ksara, Vladivostok, Chiufeng, Hong Kong, Manila, Nanking, and Perth), 11h. (Balboa Heights), 13h. (Manila, Vladivostok, Sverdlovsk, Nanking, Chiufeng, Ksara, Perth, near Kobe, and Sumoto), 14h. (Ksara, Paitigorsk, Chiufeng, near Kobe, Sumoto, near Grozny, Erevan, and Tiflis), 15h. and 18h. (near Kobe), 19h. (Calcutta, Tashkent, Tiflis, Sverdlovsk, Vladivostok, Chiufeng, Hong Kong, Nanking, and near Manila), 20h. (Baku, Sebastopol, Simferopol, Theodosia, and Yalta), 21h. (Kobe).

Dec. 25d. 20h. 4m. 4s. Epicentre 17°·5N. 104°·9W. R.3.
(as on 1933 July 9d. and near position 17°·7N. 105°·0W. given by Little Rock).

$A = -\cdot2452$, $B = -\cdot9216$, $C = +\cdot3007$; $\delta = -11$;
$D = -\cdot966$, $E = +\cdot257$; $G = -\cdot077$, $H = -\cdot291$, $K = -\cdot954$.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.	M. m.
Manzanillo	N.	1·6	19	0 24	+ 1	—	—	—	—
Guadalajara	N.	3·4	22	0 52	+ 3	—	—	—	—
Tacubaya	N.	5·7	70	1 32	P*	—	—	—	—
Oaxaca	N.	7·8	92	2 6	P*	—	—	—	—
Tucson		15·7	341	e 3 34	− 4	e 6 22	− 9	—	—
La Jolla		19·0	327	i 4 17	− 2	—	—	—	—
Riverside	z.	19·9	328	i 4 25	− 4	—	—	—	—
Mount Wilson	z.	20·4	327	i 4 32	− 2	—	—	—	—
Pasadena		20·4	327	i 4 34	0	e 8 19	+ 5	i 9·9	—
Little Rock		20·6	31	e 4 41	+ 5	e 8 33	+15	e 11·3	—
Santa Barbara		21·5	325	i 4 44	− 1	—	—	—	—
Haiwee		22·0	331	i 4 49	− 2	—	—	—	—
Tinemaha		22·8	332	i 4 59	0	—	—	—	—
St. Louis		24·7	28	e 5 20	+ 3	e 9 42	+ 6	e 12·1	14·3
Florissant		24·8	28	e 5 21	+ 3	e 9 43	+ 6	—	12·9
Berkeley		25·4	327	—	—	e 9 52	+ 4	—	—
Ukiah		26·8	327	i 7 8	?	e 9 56?	−16	—	—
Columbia		26·9	48	—	—	e 10 18	+ 4	e 15·7	—
Chicago		28·4	28	e 5 53	+ 2	e 10 46	+ 8	e 14·2	—
Bozeman		28·7	351	—	—	e 10 8	−35	—	—
Madison		28·8	24	—	—	e 10 56?	+ 9	—	—
Butte		29·3	350	—	—	e 10 8	−45	—	—
Ann Arbor		30·6	32	e 8 26	?	e 16 8	ScS	e 16·9	—
Seattle		33·4	339	—	—	(e 13 56?)	SS	e 13·9	—
Toronto		33·8	34	—	—	e 12 2	− 1	16·9	—
Philadelphia		34·1	43	e 7 19	+38	e 12 13	+ 5	e 17·4	—
Victoria		34·3	338	—	—	e 12 3	− 8	15·9	—
San Juan		36·7	83	e 10 41	?	e 16 39	ScS	—	—
Ottawa		37·0	35	e 7 14?	+ 8	e 12 56	+ 5	e 19·4	—
Oak Ridge		37·8	42	—	—	i 17 17	ScS	e 60·9	—
Weston		37·9	42	e 9 18	PPPP	—	—	—	23·1
Seven Falls		40·7	36	e 9 24	PPP	e 13 51	+ 4	—	—
East Machias		41·5	41	—	—	e 12 44	−75	e 21·1	—
Huancayo		41·8	133	e 7 34	−13	e 14 19	+16	e 17·3	—
La Paz		49·6	130	9 15	+27	i 16 34	+39	23·9	27·2
Honolulu		49·8	284	—	—	e 19 26	SS	—	—
College		55·3	340	—	—	e 19 8	ScS	e 29·4	—
Scoresby Sund		71·2	21	—	—	20 38	+ 3	33·9	—
De Bilt		87·9	35	—	—	e 23 47	+11	e 41·9	52·4
Uccle		88·0	37	—	—	e 23 21	[+ 1]	e 41·9	—
Sverdlovsk		104·7	8	—	—	e 26 20	+12	46·9	57·8
Tiflis		114·5	25	e 28 40	PS	—	—	e 50·9	68·3
Ksara		116·5	37	e 19 53	PP	—	—	53·9	60·9
Tashkent		121·0	5	—	—	e 39 56?	SSS	e 61·4	74·0

Additional readings :—
Tucson eSSS = +7m.32s.
Little Rock eE = +8m.40s.
St. Louis iPN = +5m.21s., ePPPEN = +6m.6s., eSN = +9m.44s., eSSEN = +10m.38s., eEN = +11m.56s.
Florissant iSN = +9m.47s.
Columbia eS = +10m.28s.
Chicago eS = +10m.54s.
Philadelphia eSS = +14m.42s.
Ottawa eN = +8m.8s.
Honolulu eSSS = +20m.56s.
Sverdlovsk e = +33m.39s.
Ksara ePS = +29m.40s., ePPS = +30m.51s.
Long waves were also recorded at Ivigtut, Baku, Pulkovo, Vladivostok, Christchurch, Wellington, and other European stations.

Dec. 25d. Readings also at 0h. (near Tananarive), 2h. (Reykjavik), 4h. (near La Paz), 5h. (Huancayo (2), La Paz, and San Juan), 8h. (La Paz and Tucson), 9h. (Mizusawa), 10h. (Batavia, near Malabar, near Santiago (3), and San Javier (2)), 13h. (near Belgrade), 15h. (Kobe), 16h. (Fresno, Lick, San Francisco, near Berkeley, and Branner), 19h. (near Kobe (2), Toyooka, Nagoya, and Sumoto (2)), 20h. (Bozeman, Florissant, and Lick), 21h. (near Balboa Heights), 23h. (near Andijan).

Dec. 26d. 18h. Japanese shock for which the epicentre has not been determined.
Mizusawa eP =34m.52s., iS =35m.21s.
Nagoya eP =35m.8s., eS =35m.49s., M =36m.8s.
Toyooka PZ =35m.32s., ePE =35m.49s., SN =36m.47s., M =37m.4s.
Kobe PZ =35m.55s., PEN =36m.4s., eN =36m.8s., SZ =36m.41s., SN =36m.53s., eSE =36m.55s., M =37m.56s.
Sumoto ePE =36m.14s., eSEN =36m.55s., eZ =37m.3s., M =37m.10s.

Dec. 26d. 22h. 52m. 49s. Epicentre 30°·7S. 177°·6W. (as on 1936 Oct. 4d.). R.2.

$A = -\cdot8591$, $B = -\cdot0360$, $C = -\cdot5105$; $\delta = -4$;
$D = -\cdot042$, $E = +\cdot999$; $G = +\cdot510$, $H = +\cdot021$, $K = -\cdot860$.

A correction for depth of focus 0·025 has been applied.

	Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	°	m. s.	s.	m. s.	s.	m.	m.
New Plymouth	−0·4	10·8	217	2 11?	−15	—	—	—	—
Wellington	−0·5	12·2	208	2 42	− 2	4 36	−19	i 5·6	—
Christchurch	−0·7	15·0	208	3 13a	− 6	5 38	−20	6·7	—
Apia	−0·8	17·7	18	i 3 51	− 2	e 7 11	+12	—	—
Riverview	−1·5	26·5	255	i 5 20a	0	e 9 42	+ 1	e 12·0	15·8
Melbourne	−1·8	31·5	245	7 1	+59	11 34	+35	13·9	16·8
Adelaide	−2·0	36·7	253	i 6 57	+11	i 12 30	+13	—	21·0
Honolulu	−2·9	55·4	23	i 9 16	+ 6	i 17 2	+27	e 24·3	—
Perth	−2·9	55·9	250	12 11?	PP	—	—	—	—
Batavia	−3·2	74·4	272	i 11 18a	0	i 20 45	+10	e 36·2	—
Manila	−3·2	74·4	298	i 11 17a	− 1	21 23	−12	—	—
Hong Kong	−3·4	84·2	300	12 11	− 1	22 23	− 1	—	43·2
Zi-ka-wei z.	−3·4	84·8	312	i 12 13k	− 2	—	—	—	44·0
Santa Barbara z.	−3·4	84·9	45	i 12 19	+ 3	—	—	—	—
La Jolla	−3·4	85·4	47	e 12 13	− 5	e 22 40	+ 3	—	—
Pasadena	−3·4	85·7	45	i 12 22	+ 2	i 22 47	+ 7	e 38·0	—
Mount Wilson	−3·4	85·8	45	i 12 23	+ 3	—	—	—	—
Berkeley	−3·4	85·9	40	e 12 20	− 1	e 22 38	− 4	—	—
Santiago	−3·4	85·9	127	e 12 2	−19	22 25	−17	—	—
Riverside	−3·4	86·1	46	i 12 24	+ 2	e 22 47	+ 3	—	—
Ukiah	−3·4	86·2	39	e 12 19	− 3	e 22 45	0	e 38·4	—
Medan	−3·4	86·4	276	e 12 29	+ 6	—	—	e 43·2	—
Nanking	−3·4	87·0	310	12 26	0	e 22 49	− 4	39·0	44·6
Haiwee	−3·4	87·1	44	i 12 30	+ 3	e 22 56	+ 2	—	—
Tinemaha	−3·5	87·6	43	i 12 53	+24	e 23 0	+ 1	—	—
Phu-Lien	−3·5	89·1	295	e 12 15	−21	—	—	—	—
Tucson	−3·5	89·2	50	e 12 39	+ 2	23 9	− 6	e 36·4	—
Victoria	−3·5	92·8	33	e 16 41	PP	e 23 24	[−25]	e 37·2	—
La Plata	−3·5	93·3	135	23 31	SKS	(23 31)	[−21]	44·1	—
Chiufeng	−3·5	93·7	315	i 12 57a	− 1	i 23 28	[−26]	e 39·5	50·5
Huancayo	−3·5	94·1	106	e 13 3	+ 3	i 23 42	[−14]	e 42·5	—
Sitka	−3·5	94·7	21	—	—	e 23 17	[−42]	—	—
Buttle	−3·6	96·7	39	—	—	e 23 45	[−24]	e 46·5	—
Bozeman	−3·6	97·3	40	—	—	e 23 24	[−49]	—	—
La Paz	−3·6	97·4	113	i 13 25a	+10	i 23 59	[−14]	45·2	47·5

Continued on next page.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
College		−3·6	98·4	11	e 22 22	?	e 24 23	−17	e 43·7	—
Florissant		—	106·7	52	e 13 51	−24	e 24 35	[−23]	e 50·6	56·6
St. Louis		—	106·8	52	e 18 28	PP	e 25 24	{−20}	e 49·1	—
Kodaikanal	E.	—	108·0	270	18 30	PP	i 24 43	[−21]	—	56·8
Madison		—	109·2	50	14 11?	−16	—	—	—	—
Chicago		—	109·9	52	—	—	e 25 41	{−25}	e 49·3	—
Hyderabad		—	110·5	278	—	—	28 33	PS	43·5	65·3
Rio de Janeiro		—	110·8	134	e 18 11	[− 9]	e 28 28	PS	—	—
Columbia		—	111·5	61	e 19 11	PP	e 25 59	{−19}	—	—
Cape Town	E.	—	113·6	194	e 26 53	S	—	—	e 55·4	66·0
	N.	—	113·6	194	e 26 13	S	—	—	e 54·7	61·0
Agra	E.	—	115·0	287	19 15	PP	25 2	[−32]	—	—
Bombay		—	116·0	277	18 11	[−24]	28 56	PS	—	64·7
Toronto		—	116·2	53	—	—	e 25 14	[−24]	e 46·2	—
San Juan		—	117·4	84	—	—	e 25 16	[−26]	—	—
Philadelphia		—	118·0	58	e 19 57	PP	e 26 42	{−21}	e 47·0	—
Ottawa		—	119·2	52	—	—	e 25 21	[−27]	49·2	—
East Machias		—	124·8	54	—	—	e 51 35	?	e 60·5	—
Tashkent		—	126·2	300	18 53	[− 6]	25 42	[−26]	e 52·2	72·0
Sverdlovsk		—	132·4	320	19 13	[+ 2]	26 27	[+ 1]	64·2	72·3
Ivigtut		—	135·3	32	22 41	PKS	—	—	—	—
Scoresby Sund		—	138·0	10	19 8	[−11]	e 33 41	SKSP	61·2	—
Baku		—	140·6	297	19 8	[−14]	—	—	55·2	86·2
Grozny		—	143·6	303	e 19 17	[−12]	—	—	—	—
Tiflis		—	144·5	300	e 19 15	[−18]	e 32 53	SKSP	64·2	83·0
Erevan		—	144·8	297	e 19 20	[−13]	—	—	—	—
Moscow		—	144·9	326	19 17	[−17]	29 19	{−34}	e 62·7	81·3
Piatigorsk		—	145·4	304	e 19 22	[−13]	—	—	—	—
Pulkovo		—	145·5	335	i 20 17	[+42]	—	—	69·2	82·5
Bergen		—	150·2	357	19 37	[− 5]	—	—	e 39·2	72·2
Theodosia		—	150·6	309	e 19 35	[− 8]	—	—	—	—
Ksara		—	151·6	285	i 19 25a	[−19]	—	—	72·2	—
Yalta		—	151·6	308	e 19 39	[− 5]	—	—	—	—
Sebastopol		—	152·0	309	e 19 39	[− 5]	—	—	—	—
Copenhagen		—	154·0	347	i 19 33	[−14]	e 30 23	{−12}	67·2	—
Edinburgh		—	154·5	8	—	—	e 43 11?	SS	e 81·2	—
Helwan		—	155·1	275	i 19 55	[+ 7]	i 30 59	{+ 8}	—	84·0
Hamburg		—	156·5	350	i 19 36	[−14]	e 42 11?	SS	e 76·2	85·2
Rathfarnham Castle		—	156·5	13	i 18 26	?	e 30 23	{−36}	68·2	82·2
Stonyhurst		—	156·6	8	e 29 11?	PPPP	e 33 41?	SKSP	e 77·2	86·2
De Bilt		—	158·5	355	i 19 39a	[−13]	e 34 16	SKSP	e 68·2	94·2
Prague		—	158·6	340	e 20 11?	[+19]	e 34 17	SKSP	e 76·2	88·2
Oxford		—	158·8	7	e 19 43	[− 9]	i 30 42	{−30}	e 72·8	78·5
Budapest		—	158·9	327	e 20 41	PP	—	—	e 87·2	135·7
Kew		—	159·2	5	i 19 38k	[−14]	e 44 14	SS	e 69·2	132·8
Vienna		—	159·5	333	e 19 40	[−13]	—	—	e 86·2	—
Cheb		—	159·8	343	e 18 56	[−57]	e 27 51	?	e 43·2	51·2
Uccle		—	159·9	356	i 19 41a	[−13]	i 34 25	SKSP	e 57·2	—
Jersey		—	161·2	9	—	—	e 56 11?	?	79·6	—
Stuttgart		—	161·2	346	i 19 42a	[−13]	—	—	77·2	88·2
Strasbourg		—	161·7	349	i 19 32a	[−24]	e 30 59	{−29}	e 57·2	89·7
Paris		—	161·9	0	i 19 42a	[−14]	e 29 48	?	77·2	97·2
Basle		—	162·7	348	e 19 43	[−14]	—	—	—	—
Zurich		—	162·7	346	e 19 43	[−14]	—	—	—	—
Chur		—	162·9	343	e 19 43	[−14]	—	—	—	—
Besançon		—	163·2	351	e 24 31	PP	—	—	—	—
Neuchatel		—	163·3	349	e 20 44	PKP_2	—	—	—	—
Florence		—	165·2	334	e 19 36	[−23]	—	—	50·2	—
Toledo		—	169·4	29	i 19 50	[−13]	i 33 12	{+63}	—	—
Tortosa	N.	—	169·8	8	19 46	[−18]	32 2	{− 9}	e 81·2	98·5
San Fernando		—	170·8	49	e 19 57	[− 7]	e 32 16	{ 0}	82·2	—
Granada		—	171·8	36	e 19 54	[−11]	—	—	—	—
Almeria		—	172·7	32	e 20 5	[0]	—	—	—	—
Algiers		—	173·9	356	i 19 55	[−11]	e 32 1	{−31}	e 48·2	84·2

For Notes see next page.

NOTES TO DEC. 26d. 22h. 52m. 49s.

Additional readings :—
Wellington i = +3m.46s.
Christchurch L_qE =5m.48s.
Apia sP =4m.45s., e = +6m.43s.
Riverview iZ = +5m.22s., iE = +6m.18s. and +10m.12s., iN = +10m.33s.
Melbourne i = +7m.23s. and +11m.18s.
Adelaide i = +8m.35s., +12m.9s., +15m.13s., iSS = +16m.27s., i = +18m.20s.
Honolulu e = +15m.18s., PS = +17m.23s.
Batavia iE = +16m.25s.
Hong Kong PP = +15m.15s., PS = +22m.55s., SS = +27m.27s.
Pasadena iPPNZ = +15m.52s., iPKP,PKPZ = +38m.32s.
Berkeley eN = +12m.24s.
Ukiah e = +22m.18s., eS = +23m.2s., e = +23m.16s.
Medan ePE = +12m.37s.
Nanking iPP = +15m.45s., PS = +23m.16s., SSN = +28m.36s., SSE = +29m.7s., SSSE = +32m.21s., SSSSE = +33m.37s.
Tinemaha eN = +23m.19s.
Phu-Lien e = +12m.36s.
Tucson S = +23m.35s., ePS = +24m.38s., eSS = +29m.23s., eSSS = +32m.59s.
Victoria eE = +30m.11s.
La Plata S = +30m.47s.
Chiufeng PPNZ = +16m.38s., iS = +24m.1s., iPPSE = +25m.37s.
Huancayo e = +15m.58s., PS = +25m.36s., eSS = +30m.48s., SS = +30m.55s., eSSS = +34m.42s., e = +37m.50s.
Sitka eSS = +32m.11s.?
Butte e = +24m.34s.
Bozeman eSKS = +23m.46s., eSS = +31m.17s.
La Paz iPPZ = +17m.31s., iSN = +24m.45s., iPSZ = +26m.11s., SSN = +31m.27s., SSSN = +35m.27s.
College e = +23m.22s., eSSS = +35m.37s.
Florissant eZ = +13m.58s., +17m.43s., epPKPZ = +18m.32s., ipPPZ = +18m.55s., iSKKS = +25m.27s., eSZ = +27m.35s., esSNZ = +28m.48s.
Kodaikanal PSE = +27m.55s., eSSE = +33m.51s.
Chicago eSSS = +38m.17s.
Columbia ePS = +28m.41s.
Cape Town iN = +28m.51s. and +35m.3s., iE = +35m.6s.
Agra PSE = +28m.58s., PPSE = +30m.17s., SSE = +35m.30s., SSSE = +39m.52s.
Bombay PPE = +19m.11s., PPPE = +21m.33s., PPS = +30m.26s., SSE = +35m.41s.
Toronto eN = +27m.25s., e = +29m.18s. and +35m.41s.
San Juan eSKKS = +26m.36s., ePS = +29m.39s.
Philadelphia e = +25m.6s., eSKSP = +29m.36s., ePS = +29m.41s., eSS = +35m.58s.
Ottawa eE = +29m.35s., e = +36m.17s., eE = +44m.11s.
East Machias e = +57m.5s.
Tashkent PP = +20m.17s., PS = +30m.19s., SKSP = +31m.1s., SS = +37m.35s., SSS = +42m.35s.
Sverdlovsk iPP = +21m.33s., iPKS = +22m.34s., SKKS = +28m.37s., SS = +40m.17s.
Scoresby Sund +22m.43s.
Baku iPKS = +22m.53s., e = +27m.7s., PPS = +34m.49s.
Tiflis eN = +7m.17s., eEN = +22m.51s., eN = +27m.23s., eE = +35m.25s. and +38m.15s.
Moscow PP = +22m.33s.
Pulkovo PS = +34m.54s., PPS = +37m.2s., SS = +43m.5s., SSS = +47m.5s.
Bergen PP = +28m.35s.
Ksara ePP = +23m.8s., ePPP = +26m.40s., eSS = +42m.36s.
Copenhagen PP = +23m.27s., eN = +28m.37s. and +32m.47s., +39m.29s., SS = +42m.41s.
Helwan e = +20m.59s., i = +23m.33s. and +37m.5s.
Rathfarnham Castle e = +24m.12s., +34m.19s., and +46m.3s.
Stonyhurst e = +59m.31s.
De Bilt iZ = +23m.54s.
Prague e = +33m.11s.? and +38m.59s.
Oxford i = +23m.13s., +23m.52s., and +24m.49s.
Budapest e = +53m.11s.?
Kew iPP = +23m.57s., iZ = +29m.55s., iPPSZ = +37m.33s., eN = +38m.58s., ePSSEN = +35m.0s., eSSSE = +50m.32s., eNZ = +52m.6s., eE = +58m.58s.
Uccle iNZ = +20m.20s., +23m.20s., and +23m.59s., eN = +27m.14s., iZ = +27m.43s., eN = +29m.50s.
Jersey e = +58m.38s., i = +63m.20s., e = +78m.11s.?
Stuttgart ePKPNZ = +20m.20s., ePP = +23m.6s., ePPP = +27m.41s., ePPP = +32m.11s., eSKSP = +34m.35s., eSS = +45m.29s.

Continued on next page.

Strasbourg iPPZ = +24m.7s., eN = +24m.41s.? ePPPZ = +27m.53s., eZ = +29m.53s., eN = +32m.16s., eZ = +33m.34s., ePSKS = +34m.36s., i = +35m.15s., e = +37m.41s., eSS = +44m.44s.
Paris PP = +24m.10s., e = +29m.48s.
Zurich e = +20m.33s.
Toledo PKP_2Z = +20m.4s., iPPZ = +24m.48s., PPPZ = +29m.5s., iS_cSPKP = +35m.27s., iSSEN = +45m.52s., iSSSN = +52m.43s.
San Fernando e = +20m.19s., ePP = +25m.43s., eSS = +46m.35s.
Granada ePP = +25m.8s.
Long waves were also recorded at Oak Ridge and other European stations.

Dec. 26d. Readings also at 0h. (near Kobe and Sumoto), 4h. (near Andijan), 5h. (Frunse), 9h. (Nanking and near Taihoku), 13h. (near Apia), 14h. (San Francisco, near Berkeley, and near Kobe), 15h. (Sverdlovsk, Tashkent, Vladivostok, Chiufeng, Nanking, Hong Kong, and near Manila), 16h. (De Bilt, Strasbourg, and near Nagoya), 17h. (Almata, near Nagoya (2), and near Wellington), 18h. (Yalta), 22h. (Bidston), 23h. (near Nagoya and near Santiago).

Dec. 27d. 0h. 14m. 47s. Epicentre 34°·4N. 139°·2E. N.1.
(Epicentre given by Japanese).

A = −·6246, B = +·5391, C = +·5650 ; δ = −2 ;
D = +·653, E = +·757 ; G = −·427, H = +·369, K = −·825.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Susaki	0·3	326	0 3k	− 1	0 8	0	—	—
Ito	0·6	352	0 2k	− 7	0 8	− 7	—	—
Mera	0·7	45	0 9a	− 1	0 19	+ 1	—	—
Misima	0·7	344	0 0k	−10	0 10	− 8	—	—
Numadu	0·8	22	0 11k	0	0 21	0	—	—
Omaesaki	0·8	284	0 11a	0	0 24	+ 3	—	—
Kamakura	0·9	17	0 12k	− 1	0 27	+ 4	—	—
Yokohama	1·1	20	0 16a	0	0 31	S*	—	—
Hunatu	1·2	342	0 16k	− 1	0 34	S*	—	—
Katuura	1·2	51	0 15	− 2	0 30	− 1	—	—
Hamamatu	1·3	285	0 15a	− 3	0 31	− 2	—	—
Komaba	1·3	18	0 18	0	0 35	+ 2	—	—
Mitaka	1·3	13	0 18	0	0 39	+ 6	—	—
Tokyo, Cent. Met. Obs.	1·3	19	0 19a	+ 1	0 38	+ 5	—	0·7
Tokyo I.U.	1·3	19	0 21	+ 3	0 40	+ 7	—	—
Hatidyozima	1·4	158	0 19k	− 1	0 36	0	—	—
Kohu	1·4	337	0 19k	− 1	0 46	+10	—	—
Iida	1·6	315	0 25k	+ 2	0 45	+ 4	—	—
Kumagaya	1·8	7	0 26a	0	0 50	+ 4	—	—
Tukubasan	1·9	22	0 26a	− 2	0 51	+ 2	—	—
Tyosi	1·9	46	0 26	− 2	0 52	+ 3	—	—
Kakioka	2·0	24	0 27a	− 2	0 54	+ 3	—	—
Maebasi	2·0	357	0 29	0	0 55	+ 4	—	—
Nagoya	2·0	293	e 0 28	− 1	i 0 52	+ 1	—	1·2
Oiwake	2·0	345	0 30k	+ 1	0 57	S*	—	—
Matumoto	2·1	331	0 30k	0	1 9	S_g	—	—
Gihu	2·2	297	0 31	0	0 57	0	—	—
Mito	2·2	27	0 35	+ 4	1 16	+19	—	—
Tu	2·2	279	0 46	+15	1 19	+22	—	—
Utunomiya	2·2	14	0 32	+ 1	1 0	+ 3	—	—
Kameyama	2·3	281	0 34	+ 1	1 8	S_g	—	—
Nagano	2·4	340	0 39k	+ 5	1 14	S_g	—	—
Takayama	2·4	318	0 35k	+ 1	1 16	S_g	—	—
Ibukisan	2·5	293	0 37a	+ 1	1 25	S_g	—	—
Hikone	2·6	290	0 37a	0	1 10	+ 3	—	—
Takada	2·8	344	0 40	0	1 22	S*	—	—
Toyama	2·8	325	0 47k	+ 7	1 30	S_g	—	—
Yagi	2·8	272	0 40	0	1 41	+29	—	—
Kyoto	2·9	282	0 42a	+ 1	1 32	S_g	—	—
Osahama	2·9	29	0 36a	− 5	1 12	− 2	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
	°	°	m. s.	s.	m. s.	s.	m.	m.
Hukui	3·0	305	0 33	−10	1 14	− 3	—	—
Husiki	3·0	324	0 47	+ 4	1 29	S*	—	—
Kanazawa	3·0	316	0 45	+ 2	1 35	S_g	—	—
Osaka	3·0	275	0 45	+ 2	1 36	S_g	—	—
Siomisaki	3·0	252	0 41	− 2	1 22	+ 5	—	—
Kobe	3·4	276	e 0 47a	− 2	1 22	− 5	—	2·0
Wakayama	3·4	266	0 47a	− 2	1 29	+ 2	—	—
Hukusima	3·5	13	0 49	− 1	1 33	+ 3	—	—
Miyadu	3·5	290	0 50	0	1 28	− 2	—	—
Niigata	3·5	358	1 8	P_g	1 50	S_g	—	—
Wazima	3·5	330	0 55a	+ 5	1 48	S_g	—	—
Sumoto	3·6	269	i 0 49a	− 2	1 34	+ 2	e 2·0	2·2
Tokusima	3·8	266	1 2	P*	1 50	S*	—	—
Toyooka	3·8	289	0 53a	− 1	1 54	S*	—	2·4
Yamagata	4·0	14	1 2	+ 5	2 18	S_g	—	—
Sendai	4·1	19	0 58k	0	2 4	S*	—	—
Okayama	4·3	275	1 2	+ 1	2 12	S_g	—	—
Isinomaki	4·4	22	0 41	−22	—	—	—	—
Tadotu	4·5	269	0 53	−11	1 52	− 3	—	—
Koti	4·8	262	1 7	− 1	2 13	+10	—	—
Mizusawa	5·0	18	e 1 13	+ 2	i 2 11	+ 3	—	—
Akita	5·3	7	1 20	+ 5	2 37	S*	—	—
Matuyama	5·4	265	1 14a	− 3	3 3	S_g	—	—
Morioka	5·5	14	1 17	− 1	2 48	S*	—	—
Hirosima	5·6	267	1 19	− 1	—	—	—	—
Miyako	5·7	22	1 26	+ 5	2 15	−10	—	—
Hamada	5·9	278	1 24	0	2 28	− 3	—	—
Ooita	6·4	261	1 19a	−12	3 19	S_g	—	—
Aomori	6·5	8	1 40	+ 8	3 18	S*	—	—
Simonoseki	6·9	264	1 39	+ 1	—	—	—	—
Miyazaki	7·0	251	1 37	− 2	3 5	+ 6	—	—
Kumamoto	7·3	259	1 42	− 2	3 19	+13	—	—
Hukuoka	7·3	270	1 44	0	3 29	S*	—	4·9
Hukuoka B	7·3	270	e 1 42	− 2	e 3 32	S*	3·8	4·9
Hakodate	7·5	9	2 3	P*	4 4	S_g	—	—
Kagosima	7·8	251	1 46	− 5	3 47	S*	—	—
Muroran	8·0	9	2 6	+13	—	—	—	—
Nagasaki	8·0	260	1 56	+ 3	—	—	—	—
Urakawa	8·3	19	1 55	− 3	3 35	+ 4	—	—
Husan	8·4	278	e 2 7	+ 8	e 4 5	S*	—	—
Sapporo	8·8	9	2 11a	+ 6	4 30	S*	—	—
Tomie	8·9	262	2 28	+22	4 46	S_g	—	—
Obihiro	9·1	18	2 11	+ 2	3 48	− 3	—	—
Kusiro	9·5	23	2 39	+25	—	—	—	—
Asahigawa	9·7	13	2 26	+ 9	—	—	—	—
Nake	10·2	237	2 30	+ 6	—	—	—	—
Nemuro	10·2	27	3 51	+87	6 54	?	—	—
Keizyo	10·4	291	e 2 35	+ 9	e 4 59	S*	—	—
Vladivostok	10·4	330	e 2 28	+ 2	e 4 20	− 3	5·0	6·0
Zinsen	10·7	291	e 2 36	+ 5	e 4 41	+10	—	—
Heizyo	11·7	297	e 2 53	+ 9	e 5 23	+28	—	—
Naha	12·9	234	2 10	−51	5 3	−22	—	—
Dairen	14·8	293	3 37	+11	6 37	+27	—	—
Zi-ka-wei	15·2	263	e 3 30	− 1	6 45	+25	9·4	10·1
Nanking	17·2	268	3 55k	− 2	7 26	+20	9·2	10·1
Taihoku	18·0	243	e 4 28	+21	e 7 57	+32	—	13·2
Chiufeng	19·2	295	e 4 21	0	7 57	+ 7	—	10·6
Arisan	19·4	242	4 25	+ 2	—	—	—	—
Taito	19·6	240	4 29	+ 4	—	—	—	—
Kosyun	20·4	241	4 28	− 6	8 54	+40	—	—
Hong Kong	24·5	247	5 19?	+ 4	9 46	+14	—	14·9
Manila	25·7	224	e 5 22	− 4	10 13	+20	—	—
Semipalatinsk	45·0	310	e 8 16	+ 3	—	—	—	—
Medan	48·6	241	e 9 18	+37	—	—	e 29·2	—
Frunse	49·9	301	e 8 50	− 1	16 11	+12	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Andijan		52·1	298	9 8	+ 1	16 44	+14	—	—
Agra	E.	52·3	280	e 9 10	+ 1	e 16 10	−23	—	—
Tashkent		54·1	300	e 9 26	+ 4	i 17 8	+11	e 26·2	31·5
Sverdlovsk		55·8	320	i 9 53	+19	i 17 47	+27	28·2	33·9
Honolulu		56·1	85	—	—	e 23 23	SSS	e 25·4	—
Samarkand		56·3	299	9 30	− 8	—	—	—	—
Moscow		68·1	324	—	—	e 16 43	?	—	39·1
Adelaide		69·3	181	e 20 8	S	(e 20 8)	− 5	—	40·5
Grozny		69·4	310	e 11 13	+ 6	—	—	38·2	—
Piatigorsk		70·8	312	e 11 35	+19	—	—	37·2	—
Tiflis		70·8	308	e 11 20	+ 4	e 20 36	+ 5	e 34·2	39·9
Erevan		71·8	307	e 11 21	− 1	—	—	—	—
Scoresby Sund		74·2	354	e 11 38	+ 2	—	—	33·2	—
Tinemaha	Z.	78·6	53	i 12 0	0	—	—	—	—
Copenhagen		79·1	333	12 3	0	—	—	39·2	—
Santa Barbara	Z.	79·1	56	i 12 4	+ 1	—	—	—	—
Haiwee	Z.	79·8	54	e 12 3	− 4	—	—	—	—
Pasadena		80·3	56	i 12 10k	+ 1	—	—	e 35·2	—
Mount Wilson	Z.	80·4	56	e 12 9	− 1	—	—	—	—
Ksara		81·0	305	e 12 23	+10	e 22 33	+ 7	—	—
Riverside	Z.	81·0	56	i 12 9	− 4	—	—	—	—
La Jolla		81·7	56	e 12 19	+ 2	—	—	—	—
Vienna		82·9	326	e 12 23	0	e 22 19	−27	e 43·9	—
Belgrade		83·3	321	e 12 27a	+ 2	—	—	e 35·5	—
De Bilt		84·6	334	e 12 29	− 2	—	—	e 43·2	59·4
Stuttgart		85·7	330	e 12 37	0	—	—	—	49·8
Uccle		86·0	334	e 12 39	+ 1	—	—	e 43·2	—
Strasbourg		86·4	331	e 12 40	0	e 23 46	+25	—	51·5
Chur		87·0	329	e 12 44	+ 1	—	—	e 48·6	—
Zurich		87·0	330	e 13 4	+21	—	—	—	—
Basle		87·3	330	e 12 46	+ 1	—	—	—	—
Toledo		99·9	332	i 17 9	PP	e 19 50	?	—	—
La Paz	N.	149·7	60	19 49	[+ 8]	—	—	56·7	78·8

Additional readings :—
Kobe eZ = +56s., iE = +1m.11s., iN = +1m.13s., S?N = +1m.25s., SZ = +1m.31s., iE = +1m.42s., iN = +1m.45s., iSE = +1m.52s.
Sumoto SE = +1m.36s., eSZ = +1m.45s.
Toyooka iZ = +57s., iE = +1m.7s., iZ = +1m.37s., iN = +1m.41s., iE = +1m.43s., SN = +1m.56s., SE = +1m.58s.
Husan ? = +10m.27s.
Vladivostok e = +2m.34s., +2m.57s., +3m.4s., +3m.30s., eS = +4m.44s.
Zi-ka-wei iZ = +8m.10s.
Chiufeng P = +4m.25s., iE = +8m.11s., iZ = +8m.23s.
Kosyun +9m.3s.
Hong Kong SS = +10m.19s.
Andijan e = +13m.23s.
Adelaide e = +27m.53s.
Tinemaha iZ = +13m.32s.
Pasadena ePPZ = +14m.51s.
Mount Wilson iPZ = +12m.11s.k iZ = +13m.37s.
Belgrade e = +13m.56s.
Toledo e = +17m.24s.
Long waves were also recorded at Phu-Lien, Hyderabad, Yalta, Pulkovo, Ivigtut, Tucson, and other European stations.

Dec. 27d. 1h. 36m. 11s. Epicentre 34°·4N. 139°·2E. (as at 0h.). X.

		Δ	Az.	P.	O−C.	S.	O−C.	M.
		°	°	m. s.	s.	m. s.	s.	m.
Nagoya		2·0	293	i 0 29a	0	0 53	+ 2	1·0
Kobe	E.	3·4	276	e 0 44	− 5	1 28	+ 1	1·8
	N.	3·4	276	e 0 49	0	e 1 25	− 2	—
	Z.	3·4	276	e 0 47	− 2	e 1 26	− 1	1·7
Sumoto		3·6	269	—	—	e 1 27	− 5	—
Toyooka	N.	3·8	289	0 54	0	—	—	—
Mizusawa		5·0	18	e 1 17	+ 6	e 2 32	Sa	—

Additional readings :—
Kobe eE = +1m.8s., eZ = +1m.13s.
Toyooka PZ = +1m.1s., PE = +1m.4s.

Dec. 27d. 2h. 12m. 26s. Epicentre 34°·4N. 139°·2E. (as at 1h.). X.

A = −·6246, B = +·5391, C = +·5650 ; δ = −2.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		2·0	293	0 30	+ 1	0 56	S*	—	1·3
Kobe		3·4	276	e 0 48	− 1	e 1 18	− 9	1·8	2·1
Sumoto		3·6	269	0 51k	0	e 1 35	+ 3	e 2·3	2·5
Toyooka		3·8	289	0 55	+ 1	1 56	S_g	—	2·3
Mizusawa		5·0	18	e 1 12	+ 1	e 2 7	− 1	—	—
Hukuoka		7·3	270	e 2 7	P*	3 48	S_g	—	—
Hukuoka B		7·3	270	e 1 41	− 3	e 3 56	S_g	—	—
Husan		8·4	278	e 1 52	− 7	e 3 45	+11	—	—
Vladivostok		10·4	330	e 2 30	+ 4	e 4 40	+17	5·4	6·4
Zinsen		10·7	291	—	—	e 5 21	S*	—	—
Zi-ka-wei	Z.	15·2	263	—	—	e 7 0	+40	—	10·1
Nanking		17·2	268	4 0	+ 3	7 32	+26	9·1	—
Chiufeng		19·2	295	e 4 24	+ 3	i 7 58	+ 8	—	13·5
Calcutta	N.	45·8	269	—	—	e 16 53	?	—	28·4
Agra	E.	52·3	280	—	—	e 16 57	+24	—	—
Sverdlovsk		55·8	320	—	—	e 22 23	SSS	30·6	—
Pulkovo		69·3	330	—	—	e 26 58	?	38·6	46·1
Tiflis		70·8	308	e 11 31	+15	e 21 3	+32	e 36·1	41·4
Pasadena	Z.	80·3	56	e 12 11	+ 2	—	—	—	—
Mount Wilson	Z.	80·4	56	e 12 8	− 2	—	—	—	—
Ksara		81·0	305	e 12 39	+26	i 23 59	?	—	—
La Paz	N.	149·7	60	e 19 50	[+ 9]	—	—	—	—

Additional readings :—
Mizusawa eSN = +2m.12s.
Kobe eN = +1m.2s., SN = +1m.26s.
Toyooka SN = +1m.59s.
Long waves were also recorded at Hong Kong, Phu-Lien, Moscow, Copenhagen, De Bilt, Strasbourg, Stuttgart, Cheb, and Paris.

Dec. 27d. 8h. 43m. 4s. Epicentre 4°·5S. 153°·9E. X.
(forerunner of large shock on 29d.).

A = −·8953, B = +·4386, C = −·0785 ; δ = +9 ;
D = +·440, E = +·898 ; G = +·070, H = −·035, K = −·997.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Riverview	N.	29·5	185	e 6 1	0	e 11 23	+27	—	15·3
Sydney		29·5	185	—	—	e 11 20	+24	14·6	16·3
Adelaide		33·6	202	i 6 38	+ 1	e 11 39	−21	—	18·6
Melbourne		34·3	192	—	—	i 11 56	−15	i 15·4	17·3
Christchurch		42·4	160	13 29	S	(13 29)	−42	19·7	21·6
Perth		45·0	228	16 56?	S	(16 56?)	?	—	25·9
Nanking		49·5	329	e 8 47	0	15 47	− 7	—	—
Chiufeng		56·5	326	e 9 34	− 5	e 17 16	−14	—	—
Frunse		85·3	313	e 12 30	− 5	—	—	—	—
Andijan		86·6	311	e 12 41	0	—	—	—	—
Tashkent		88·9	311	e 13 35	+43	i 23 31	[+ 5]	e 42·3	45·4
Samarkand		90·5	309	e 13 3	+ 3	—	—	—	—
Pasadena	Z.	90·8	56	e 13 21	+20	—	—	—	—

Additional readings :—
Adelaide i = +16m.20s.
Christchurch S? = +17m.32s., L_eE = +17·9m.
Chiufeng iN = +19m.15s.
Long waves were also recorded at Tiflis, Sverdlovsk, and Hong Kong,

Dec. 27d. 12h. 31m. 59s. I
13h. 44m. 31s. II
Epicentre 34°·4N. 139°·2E. (as at 0h. and 2h.) X. X.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
I Nagoya		2·0	293	0 29	0	0 55	+ 4	—	1·0
II		2·0	293	0 28	− 1	0 50	− 1	—	1·6
I Kobe		3·4	276	e 0 48	− 1	1 26	− 1	—	1·8
II		3·4	276	e 0 47	− 2	e 1 24	− 3	—	2·3
I Sumoto		3·6	269	0 50k	− 1	e 1 37	+ 5	2·6	—
II		3·6	269	0 49a	− 2	1 32	0	2·3	2·7
I Toyooka	Z.	3·8	289	0 55	+ 1	—	—	—	—
II		3·8	289	0 56	+ 2	1 52	S*	—	2·8
I Mizusawa		5·0	18	e 1 13	+ 2	e 2 17	+ 9	—	—
II	E.	5·0	18	e 1 12	+ 1	e 2 29	S*	—	—
	N.	5·0	18	e 1 11	0	e 2 25	S*	—	—
II Hukuoka B		7·3	270	—	—	3 25	+19	—	—
II Keizyo	E.	10·4	291	e 4 46	S	(e 4 46)	+23	—	—
II Zi-ka-wei	Z.	15·2	263	—	—	e 6 51	+31	—	10·6
II Nanking		17·2	268	e 3 59	+ 2	—	—	e 9·2	—
II Chiufeng		19·2	295	e 4 30	+ 9	i 8 3	+13	e 9·2	14·8
II Calcutta	N.	45·8	269	—	—	18 26	SS	—	27·5

Additional readings :—
Kobe I ePN = +51s., eE = +1m.21s., II SEN = +1m.39s., iE = +2m.2s.
Sumoto II SE = +1m.34s., SN = +1m.37s.
Toyooka I PN = +1m.0s., PE = +1m.4s.
Long waves to Shock II also recorded at Tiflis and Strasbourg.

Dec. 27d. Readings also at 0h. (Kobe, Toyooka (2), Sumoto, near Nagoya (2), and St. Louis), 1h. (Sumoto and near Nagoya (3)), 2h. (Sumoto, Toyooka, and near Nagoya (7)), 3h. (7), 5h. (2), 8h., and 12h. (3) (near Nagoya), 13h. (Nagoya and Weston), 14h. (Kodaikanal and near Malabar), 16h. (Bombay, Calcutta Kodaikanal, Colombo, Hyderabad, Medan, Hong Kong, Nanking, Phu-Lien, Chiufeng (2), Vladivostok, Andijan (2), Batavia, Frunse, and Sverdlovsk), 17h. (Andijan and near Nagoya), 18h. (Huancayo, La Paz, Tucson, Bozeman, Vladivostok, near Kobe, and near Nagoya (2)), 19h. (Frunse, Sverdlovsk, Tiflis, and near Andijan), 20h., 21h., and 22h. (Nagoya), 23h. (Nagoya (2), Calcutta, and near Apia).

Dec. 28d. 0h. 29m. 7s. Epicentre 32°·5N. 8°·0E. N.3.

A = +·8352, B = +·1174, C = +·5373 ; δ = +3 ;
D = +·139, E = −·990 ; G = +·532, H = +·075, K = −·843.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Algiers		5·9	318	i 1 21	− 3	2 43	+12	—	—
Almeria		9·6	300	2 7	− 9	e 4 33	S*	—	—
Barcelona		10·1	334	—	—	e 4 5	−11	—	7·1
Tortosa	N.	10·2	326	2 23	− 1	5 16	S_g	e 5·5	—
Granada		10·6	299	e 2 31	+ 2	e 4 8	−20	—	—
Florence		11·6	12	0 53	?	—	—	—	5·4
San Fernando		12·3	292	—	—	e 6 31	S_g	—	—
Chur		14·4	4	e 3 25	+ 4	e 6 10	+ 9	—	—
Neuchatel		14·5	357	e 3 28	+ 6	—	—	—	—
Zurich		14·9	2	e 3 32	+ 5	e 6 14	+ 1	—	—
Basle		15·1	358	e 3 28	− 2	—	—	—	—
Strasbourg		16·1	359	e 3 45	+ 2	(e 6 53?)	+12	e 6·9	—
Stuttgart		16·3	3	e 3 59	+14	—	—	e 10·6	—
Vienna	Z.	17·0	20	e 4 21	+27	—	—	—	—
Uccle		18·4	352	e 4 10	− 1	e 7 42	+ 9	e 7·9	—
Dakar		29·2	239	(i 9 56)	?	11 20	+29	—	—

Additional readings :—
Algiers P_g = +1m.38s., PP_g = +1m.43s., SS_g = +2m.47s., i = +3m.33s.
Barcelona eS = +5m.9s. =S*.
Dakar first reading is given as iS, the second without phase.
Long waves were also recorded at Tiflis, Baku, Sverdlovsk, Cheb, De Bilt, Paris, Kew, Stonyhurst, and Edinburgh.

Dec. 28d. 17h. 20m. 0s. Epicentre 34°·4N. 139°·2E. (as on 27d.). X.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Nagoya		2·0	293	e 0 30	+ 1	i 0 55	+ 4	—	0·9
Kobe		3·4	276	0 47 a	− 2	i 1 26	− 1	—	2·0
Sumoto		3·6	269	0 50	− 1	1 30	− 2	2·2	2·6
Toyooka	E.	3·8	289	0 56	+ 2	1 38	+ 1	—	1·9
	N.	3·8	289	0 57	+ 3	1 46	+ 9	—	2 3
	Z.	3·8	289	0 53	− 1	1 38	+ 1	—	2·0
Mizusawa		5·0	18	e 1 13	+ 2	e 2 22	S*	—	—
Hukuoka		7·3	270	e 2 11	P_g	e 3 53	S_g	—	—
Hukuoka B		7·3	270	1 44	0	4 7	S_g	—	—
Husan		8·4	278	—	—	e 4 27	S_g	—	—
Keizyo	E.	10·4	291	e 5 1	S*	—	—	—	—
Vladivostok		10·4	330	e 2 33	+ 7	e 4 43	+20	5·4	9·7
Zi-ka-wei	Z.	15·2	263	e 3 20	−11	—	—	9·4	9·8
Chiufeng		19·2	295	e 4 22	+ 1	7 49	− 1	8·6	13·4
Hong Kong		24·5	247	—	—	10 4	+32	—	15·2
Manila		25·7	224	6 58	?	10 12	+19	—	—
Baku		68·1	306	e 21 30	S	(e 21 30)	S_cS	34·6	—

Additional readings :—
Kobe eN = +1m.8s., eZ = +1m.12s.
Sumoto SZ = +1m.36s., iEN = +1m.39s.
Baku eS = +28m.20s.
Long waves were also recorded at Calcutta, Sverdlovsk, and European stations.

Dec. 28d. Readings also at 0h. (near Nagoya), 1h. (Tacubaya), 3h. (Huancayo), 7h. (Paris), 9h. (Balboa Heights), 14h. (Andijan, Frunse, Neuchatel, Zurich, Chiufeng, Mizusawa, and near Nagoya (2)), 22h. (3), and 23h. (near Nagoya).

Dec. 29d. 13h. 59m. 58s. Epicentre 13°·5N. 92°·5W. X.
(as on 1936 Nov. 14d.).

A = −·0424, B = −·9714, C = +·2334 ; δ = −11 ;
D = −·999, E = +·044 ; G = −·010, H = −·233, K = −·972.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Tacubaya	N.	8·8	313	2 2?	− 3	—	—	—	—
Little Rock	N.	21·3	2	e 4 42	− 1	—	—	—	—
Columbia		23·0	25	e 5 4	+ 3	e 9 15	+10	e 12·6	—
St. Louis		25·2	4	i 5 22	0	e 10 44	+60	—	—
Tucson		25·2	321	e 5 23	+ 1	e 9 52	+ 8	—	—
Philadelphia		30·5	27	—	—	e 12 34	SS	e 17·5	—
Huancayo		30·7	146	e 3 34	?	e 11 18	+ 2	15·6	—
Pasadena	Z.	31·1	316	e 6 9	− 6	—	—	—	—
Haiwee	Z.	32·2	319	e 6 24	0	—	—	—	—
Tinemaha		32·9	320	i 6 30	− 1	—	—	—	—
La Paz	N.	38·5	140	e 8 22	+63	16 48	SSSS	21·6	23·5
Nagoya		112·5	317	e 27 41	PS	—	—	—	—
Tashkent		122·7	16	—	—	e 28 2	{+27}	—	—
Andijan		124·0	14	—	—	e 25 38	[−24]	—	—

Additional readings :—
Little Rock iEN = +4m.55s., iN = +6m.6s.
Columbia eS = +9m.24s.
St. Louis iN = +6m.51s.
Tucson eSS = +12m.50s.
Huancayo e = +9m.53s., e = +14m.8s.
Tashkent i = +38m.23s., e = +53m.2s.
Long waves were also recorded at Berkeley, Copenhagen, Ivigtut, Jersey, De Bilt, Cheb, East Machias, Stuttgart, Strasbourg, Paris, Scoresby Sund, Sverdlovsk, and Pulkovo.

Dec. 29d. 14h. 47m. 49s. Epicentre 4°·5S. 153°·9E. N.1.
(for a small shock anticipating this see Dec. 27d.).

$A = -\cdot8953$, $B = +\cdot4386$, $C = -\cdot0785$; $\delta = +9$;
$D = +\cdot440$, $E = +\cdot898$; $G = +\cdot070$, $H = -\cdot035$, $K = -\cdot997$.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Palau		22·7	300	4 55	− 3	8 44	−15	—	—
Riverview		29·5	185	i 6 1a	0	10 42	−14	e 12·2	16·3
Sydney		29·5	185	e 5 41	−20	i 10 11	−45	14·5	16·3
Adelaide		33·6	202	i 6 39	+ 2	i 11 50	−10	—	18·4
Melbourne		34·3	192	6 46	+ 3	12 4	− 7	15·2	17·3
Apia		35·1	107	e 7 11	+21	—	—	—	—
Manila		37·8	301	7 15a	+ 2	12 42	−21	—	—
Naha		39·9	320	7 40	+ 9	—	—	—	—
Nake		40·4	326	7 36	+ 1	13 38	− 4	—	—
Isigakizima		40·9	317	7 40	0	13 41	− 9	—	—
Wellington		41·3	156	7 41	− 2	14 26	+30	19·2	21·2
Siomisaki		41·6	338	7 44	− 1	—	—	—	—
Kosyun		41·9	311	7 49	+ 1	—	—	—	—
Taito		42·0	311	7 50	+ 1	14 4	− 2	—	
Tyosi		42·0	345	7 42	− 7	—	—	—	—
Hamamatu		42·1	341	8 41	+52	—	—	—	—
Miyazaki		42·2	331	7 52a	+ 2	14 3	− 6	—	—
Tokyo		42·3	343	7 56	+ 5	—	—	—	—
Christchurch		42·4	160	i 7 48a	− 4	i 14 0	−11	20·0	—
Karenko		42·4	312	7 56	+ 4	—	—	—	—
Kameyama		42·6	340	7 41	−12	—	—	—	—
Kohu		42·6	342	7 34	−19	—	—	—	—
Koti		42·6	335	7 51	− 2	—	—	—	—
Wakayama		42·6	338	7 50	− 3	—	—	—	—
Arisan		42·7	313	7 55	+ 1	—	—	—	—
Kakioka		42·7	345	7 39	−15	14 1	−15	—	—
Nagoya		42·7	338	8 4	+10	9 28	?	—	—
Tukubasan		42·7	345	7 47	− 7	—	—	—	—
Giran		42·8	314	7 56	+ 1	—	—	—	—
Mito		42·8	345	7 56	+ 1	—	—	—	—
Osaka		42·8	338	8 34	+39	—	—	—	—
Sumoto		42·8	338	e 7 51	− 4	—	—	e 17·8	—
Kumagaya		42·9	344	7 59	+ 3	—	—	—	—
Tainan		42·9	311	8 0	+ 4	—	—	—	—
Kobe		43·0	338	e 6 41	−76	e 17 37	SSS	—	22·7
Hikone		43·1	339	7 49	− 9	—	—	—	—
Maebasi		43·2	344	8 1	+ 3	—	—	—	—
Matuyama		43·2	334	7 58	0	—	—	—	—
Taihoku		43·2	314	7 59	+ 1	14 16	− 8	—	—
Kumamoto		43·3	331	7 59a	0	—	—	—	—
Oiwake		43·3	342	8 1	+ 2	—	—	—	—
Unzendake		43·5	330	7 52	− 9	—	—	—	—
Nagano		43·7	342	8 8	+ 6	—	—	—	—
Nagasaki		43·7	331	8 2	0	14 20	−11	—	—
Aidu		44·0	346	8 22	+17	—	—	—	—
Toyama		44·0	342	8 7	+ 2	14 7	−29	—	—
Hukusima		44·1	346	8 5	− 1	—	—	—	—
Tomie		44·1	329	8 6	0	—	—	—	—
Hamada		44·4	334	8 7	− 1	14 31	−10	—	—
Sendai		44·4	346	8 8	0	—	—	—	—
Yamagata		44·6	346	8 15	+ 5	—	—	—	—
Wazima		44·8	341	8 6	− 5	—	—	—	—
Perth		45·0	228	7 41	−32	14 31	−19	21·4	24·7
Mizusawa		45·2	346	e 8 2	−12	e 9 5	?	—	—
Husan		46·0	330	8 22	+ 1	14 44	−20	—	—
Malabar		46·1	265	8 27	+ 6	—	—	—	—
Batavia		46·9	266	i 8 25a	− 3	e 13 56	?	e 22·2	—
Hong Kong		47·2	307	8 29k	− 1	15 16	− 5	—	—
Zi-ka-wei	z.	47·2	322	i 8 29k	− 1	15 15	− 6	23·4	26·2
Hakodate		47·8	347	8 53	+18	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Obihiro		48·4	350	8 35	− 4	—	—	—	—
Sapporo		48·9	348	8 45	+ 2	15 41	− 4	—	—
Keizyo		49·0	332	e 8 44	0	e 15 39	− 8	e 19·4	—
Zinsen	Z.	49·0	331	i 8 46a	+ 2	e 15 41	− 6	—	—
Asahigawa		49·4	349	8 56	+ 9	—	—	—	—
Nanking		49·5	320	i 8 47a	0	i 15 47	− 7	20·1	—
Heizyo	E.	50·7	332	e 8 54	− 3	—	—	—	—
Vladivostok		51·6	340	i 9 4	+ 1	i 16 15	− 8	22·0	33·0
Phu-Lien		52·8	301	9 15	+ 3	16 34	− 5	—	—
Honolulu		53·9	59	—	—	e 16 23	−31	25·4	—
Medan		55·8	278	9 34	0	i 17 12	− 8	—	—
Chiufeng		56·5	326	i 9 39a	0	i 17 19	−11	22·7	—
Calcutta	N.	69·5	296	11 11	+ 3	20 25	+10	e 33·6	—
Colombo		74·8	278	11 39	0	20 55	−23	36·8	40·0
Kodaikanal	E.	77·5	282	i 11 53	− 2	i 21 38	−10	i 35·2	40·2
Agra	E.	79·6	298	i 11 55	−11	i 21 49	−22	—	—
College		81·3	21	e 13 2	+47	22 12	−18	e 33·5	—
Bombay		83·1	290	i 12 21	− 3	i 22 32	−16	38·2	—
Semipalatinsk		83·2	322	e 12 11	−13	—	—	—	—
Almata		83·7	315	e 12 30	+ 3	—	—	—	—
Frunse		85·3	313	e 12 31	− 4	22 56	−15	44·2	—
Andijan		86·6	311	e 12 40	− 1	e 23 10	−13	—	—
Ukiah		87·3	51	—	—	23 0	[−15]	e 39·2	—
Berkeley		87·9	52	e 12 55	+ 8	e 23 7	[−12]	—	—
Lick	E.	88·3	52	e 13 23	+34	—	—	—	—
Victoria		88·6	41	e 12 55	+ 4	i 23 9	[−15]	36·2	—
Tashkent		88·9	311	i 12 52	0	23 20	[− 6]	37·2	51·1
Seattle		89·2	42	e 13 29	+35	e 23 15	[−13]	—	—
Santa Barbara		89·6	55	e 13 0	+ 4	—	—	—	—
Fresno	N.	89·8	54	e 13 19	+23	—	—	—	—
Pasadena		90·8	56	e 13 0	− 1	i 23 52	−12	e 41·2	—
Tinemaha		91·0	53	e 13 4	+ 2	—	—	—	—
Haiwee	Z.	91·2	54	e 13 3	0	—	—	—	—
La Jolla	E.	91·5	57	e 12 42	−22	e 23 0	[−41]	—	—
Riverside	Z.	91·5	56	e 13 4	0	—	—	—	—
Sverdlovsk		95·6	326	i 13 36	+13	i 24 1	[− 3]	35·2	55·8
Bozeman		96·8	44	—	—	e 23 52	[−18]	e 44·8	—
Tucson		96·9	58	e 13 33	+ 4	e 24 2	[− 8]	e 42·7	—
Saskatoon		99·4	37	e 22 11	?	e 31 11	SS	e 48·2	—
Baku		103·6	310	13 59	− 1	25 11	{− 9}	47·2	67·6
Tananarive		103·9	248	18 17	PP	24 34	[−11]	48·9	58·2
Grozny		106·2	313	e 14 43	+31	—	—	e 53·2	—
Tiflis		107·2	312	e 14 21	+ 4	e 24 53	[− 7]	e 48·2	59·6
Erevan		107·7	310	e 13 40	−40	—	—	—	—
Moscow		108·3	327	18 29	[+17]	25 40	{−15}	42·2	60·3
Pulkovo		110·2	333	18 57	PP	25 56	{−12}	49·2	63·5
Little Rock	E.	112·0	54	e 19 20	PP	—	—	e 51·4	—
Madison		112·4	44	e 19 47	PP	e 38 41	SSS	—	—
Florissant		112·7	49	e 19 18	PP	e 25 14	[−11]	—	—
Theodosia		113·1	317	e 29 29	PS	—	—	—	—
St. Louis		113·2	49	e 19 18	PP	e 24 58	[−29]	e 51·8	58·8
Chicago		114·0	45	e 19 28	PP	e 25 11	[−19]	52·9	—
Scoresby Sund		114·0	358	i 19 33	PP	25 15	[−15]	53·2	—
Simferopol		114·0	317	e 18 37	[+ 7]	—	—	—	—
Yalta		114·1	317	e 29 35	PS	—	—	—	—
Upsala		115·5	337	—	—	e 35 11?	SS	e 51·2	59·9
Ksara		115·6	304	i 19 44	PP	29 25	PS	—	—
Ann Arbor		116·6	43	e 20 35	PP	e 26 5	[+26]	e 58·0	64·7
Toronto		119·0	41	e 20 41	PP	e 25 29	[−18]	e 49·2	—
Copenhagen		120·3	336	20 11	PP	29 53	?	54·2	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Helwan		120·4	302	i 20 11	PP	—	—	—	—
Ottawa		120·6	38	e 20 53	PP	e 25 35	[−17]	e 55·2	—
Ivigtut		120·9	12	e 20 41	PP	25 35	[−18]	48·2	—
Columbia		121·3	51	e 20 23	PP	e 25 43	[−11]	e 56·6	—
Sofia		122·0	318	e 20 11?	PP	—	—	—	—
Budapest		122·2	325	e 20 25	PP	—	—	62·2	73·7
Belgrade		122·8	321	e 18 54a	[+ 2]	—	—	e 71·6	—
Hamburg		122·8	335	e 20 35	PP	—	—	e 55·2	66·2
Cape Town		123·0	224	i 20 26	PP	i 25 51	[− 8]	51·1	59·2
Prague		123·1	330	e 20 35	PP	e 30 11	SKSP	e 50·2	67·2
Santiago		123·3	135	—	—	e 42 11	SSS	—	—
Vienna		123·3	327	e 18 51	[− 3]	30 25	SKSP	e 63·7	—
Philadelphia		123·4	43	e 20 48	PP	e 25 44	[−16]	56·7	—
Cheb		124·1	331	e 20 44	PP	e 30 37	SKSP	e 55·2	64·7
Göttingen		124·2	334	—	—	27 11?	{−33}	—	78·2
Graz		124·4	326	e 21 23	PP	—	—	e 52·2	66·4
Zagreb		124·9	325	e 19 9	[+12]	—	—	e 59·2	—
Edinburgh		125·4	344	e 20 11?	PP	i 28 1	{+ 9}	e 55·2	—
De Bilt		125·8	337	i 18 59	[0]	—	—	e 55·2	84·1
Durham		126·0	342	20 22	PP	—	—	—	80·2
East Machias		126·0	35	—	—	e 30 55	SKSP	e 58·5	—
Stuttgart		126·5	331	e 16 11	+20	e 26 14	[+ 5]	e 62·2	—
Stonyhurst		127·0	342	e 22 57	PPP	i 37 52	SS	56·2	62·9
Uccle		127·2	337	e 19 44	[+43]	e 38 45	SS	e 56·2	65·1
Strasbourg		127·3	337	i 19 1a	[− 1]	e 27 25	{−39}	49·2	78·9
Padova		127·4	327	e 19 11	[+ 9]	—	—	60·2	—
Bidston		127·6	343	e 19 16	[+14]	e 38 45	SS	e 52·2	65·4
Chur		127·7	331	e 19 3	[+ 1]	—	—	e 61·9	—
Zurich		127·8	331	e 19 27	[+24]	—	—	—	—
Basle		128·2	332	e 19 3	[0]	—	—	—	—
Huancayo		128·3	108	e 19 6	[+ 2]	e 28 2	{− 9}	e 52·6	—
Kew		128·4	340	e 19 2	[− 2]	e 38 12	SS	e 52·2	65·0
Oxford		128·4	341	e 22 16	PP	—	—	54·4	68·7
Rathfarnham Castle		128·6	345	i 18 54	[−10]	e 31 11	SKSP	53·2	64·2
Florence		128·8	325	e 19 1	[− 4]	—	—	—	52·2
Neuchatel		128·9	332	e 19 3	[− 2]	—	—	—	—
Paris		129·5	336	e 19 6	[0]	—	—	58·2	64·2
La Plata		130·5	144	22 29	PKS	—	—	61·8	—
Jersey		130·9	340	e 22 33	PKS	i 29 40	{+73}	58·4	—
La Paz		133·4	117	i 19 15a	[+ 3]	26 17	[−12]	i 64·0	91·5
Tortosa	N.	136·6	330	e 19 11?	[− 6]	22 55	?	e 52·2	108·3
Algiers		138·1	324	e 19 24	[+ 5]	—	—	e 77·2	94·2
Toledo		139·4	334	e 19 26	[+ 6]	29 37	{+17}	—	—
San Juan		139·5	66	e 20 40	?	—	—	e 63·7	—
Almeria		141·1	329	e 19 51	[+28]	—	—	e 70·7	—
Granada		141·4	341	e 19 33	[+10]	—	—	70·2	—
San Fernando		143·2	332	i 19 28	[0]	e 42 16	SS	72·2	—
Dakar		166·8	321	i 17 41	?	—	—	—	—

Additional readings :—
Riverview iPE = +6m.2s., iPPN = +6m.39s., SN = +10m.47s., iN = +11m.12s., iE = +11m.25s., eSSZ = +11m.50s.
Adelaide i = +7m.12s. and +8m.16s., iP$_c$P = +9m.17s., i = +12m.48s., +13m.53s., +15m.21s., and +16m.31s.
Apia i = +7m.49s., epP = +8m.0s., sP? = +8m.33s., P$_c$P? = +9m.18s., esS = +14m.26s.
Wellington i = +8m.1s., ipP? = +8m.13s., P$_c$P = +9m.55s., PP = +10m.6s., P$_c$S = +13m.43s., SS = +17m.7s., S$_c$S = +17m.29s., L$_q$ = +18·4m.
Christchurch PP = +8m.12s., iP$_c$PEN = +10m.10s., isSEN = +14m.44s., iS$_c$S = +17m.27s., L$_q$E = +17·9m.
Kobe ePE = +6m.48s., ePZ = +7m.55s., eE = +9m.46s.
Sendai i = +9m.13s.
Perth PP = +10m.11s., PPP = +10m.46s., PPPP = +11m.9s., P$_c$S = +13m.41s., PS = +14m.47s., SS = +17m.56s., SSS = +18m.51s., SSSS = +19m.36s.

Continued on next page.

Hong Kong PP = +10m.19s., ? = +13m.47s., ? = +16m.1s., S_cS = +18m.18s., SS = +19m.24s.
Zi-ka-wei iZ = +9m.17s., PPZ = +10m.21s., PPPZ = +10m.57s., iZ = +11m.37s. and +16m.5s., SSZ = +18m.37s., iZ = +19m.27s., SSZ = +19m.57s., SSSZ = +20m.25s., iZ = +22m.53s.
Obihiro i = +9m.36s.
Zinsen iPPZ = +9m.43s.
Nanking isS = +16m.31s.
Honolulu e = +16m.31s., iSP = +16m.58s., i = +17m.59s., e = +18m.39s., +22m.5s., SSS = +22m.47s.
Chiufeng iZ = +9m.59s., ipP = +10m.26s., isP = +10m.42s., isS = +18m.58s.
Calcutta PPPN = +15m.18s., PSN = +20m.58s., SSSN = +27m.46s.
Kodaikanal iSSSSE = +29m.9s.
Agra PPE = +14m.47s., PPPE = +16m.42s., PSE = +22m.32s., SSE = +27m.27s.
College e = +13m.16s., eSS = +27m.17s., eSS = +27m.27s.
Bombay PSEN = +23m.24s., SSE = +28m.16s.
Ukiah e = +23m.6s., eS = +23m.15s.
Berkeley eZ = +13m.17s., eE = +13m.43s., eN = +13m.49s., eN = +23m.27s.
Lick eN = +13m.26s.
Victoria e = +16m.56s., e = +29m.26s., eE = +33m.34s.
Tashkent PP = +16m.22s., iS = +23m.31s., ePS = +24m.36s., PPS = +25m.11s., eSS = +29m.47s.
Seattle ePS = +24m.53s., eSS = +29m.47s.
Sverdlovsk iPP = +17m.24s., iS = +24m.40s., PS = +26m.5s., iSS = +31m.47s.
Bozeman eSKKS = +24m.43s., eS = +24m.54s., eSS = +31m.27s.
Tucson eSKKS = +24m.45s., ePS = +26m.9s., eSS = +31m.23s.
Baku PP = +18m.12s., e = +29m.28s. and +33m.59s.
Tananarive SKKS = +25m.8s., E = +27m.53s., SS = +33m.11s.
Tiflis eN = +14m.57s., eE = +17m.50s., ePKPN = +18m.27s., PPEN = +18m.45s., SKKSEN = +26m.5s., PSE = +27m.38s., PPSE = +28m.31s., PSSE = +34m.30s.
Moscow PPP = +21m.3s., S = +26m.7s., SS = +33m.47s.
Pulkovo S = +26m.25s., PS = +28m.23s., SS = +34m.17s.
Little Rock epPPEN = +20m.0s., eEN = +22m.0s., esSPE = +29m.6s.
Madison e = +29m.11s.
Florissant eE = +19m.24s., iZ = +19m.41s., ipPPZ = +20m.5s., eSE = +27m.19s., eZ = +28m.46s., eN = +28m.57s., iZ = +28m.59s., eNZ = +29m.33s., iN = +29m.37s., iZ = +29m.40s., iNEZ = +29m.46s., eZ = +34m.51s., iN = +35m.2s., eE = +35m.5s.
St. Louis ipPPEN = +19m.58s., eE = +25m.12s., eSKKSE = +26m.16s., eSN = +26m.50s., eE = +27m.17s., eSSE = +35m.2s., esSSEN = +36m.23s.
Chicago e = +20m.12s., eSKKS = +26m.36s., eSP = +28m.36s., ePS = +29m.4s., e = +34m.11s., eSS = +35m.11s., e = +38m.14s.
Scoresby Sund e = +20m.35s., PS = +29m.9s., SS = +35m.41s., SSS = +39m.59s.
Simferopol e = +19m.20s. and +28m.59s.
Ann Arbor e = +29m.41s. and +35m.59s.
Toronto eN = +32m.29s., e = +36m.29s.
Copenhagen SS = +36m.35s.
Ottawa e = +30m.23s., +36m.29s., and +51m.11s.?
Ivigtut PS = +30m.5s., SS = +36m.47s.
Columbia e = +29m.43s., +35m.56s., eSS = +36m.38s.
Budapest eN = +20m.28s.
Belgrade iZ = +20m.33s., eNE = +31m.32s.
Cape Town iSS = +32m.29s., isSS = +37m.32s.
Prague e = +32m.17s., +35m.53s., +37m.11s., and +42m.11s.?
Philadelphia ePS = +30m.13s., e = +32m.38s., +36m.38s., eSS = +37m.18s., eSSS = +41m.31s., e = +45m.44s., +50m.4s.
De Bilt eEN = iZ = +20m.56s., e = +22m.11s.
East Machias eSS = +38m.21s.
Stuttgart ePKPZ = +18m.59s., ePKPEZ = +19m.29s., ePP = +20m.46s., ePKS = +22m.6s., eZ = +22m.48s., eEZ = +24m.43s., eZ = +26m.55s., ePPS = +32m.39s., eSSEN = +37m.53s.
Uccle iZ = +21m.3s., iE = +22m.20s.
Strasbourg eZ = +19m.34s., iPP = +21m.5s., iSKS = +22m.18s., iPPP = +24m.1s., ePS = +31m.11s.? iPPS = +32m.32s., e = +35m.15s. and +36m.42s., eSS = +38m.15s.
Bidston e = +21m.26s. and +22m.26s.
Basle e = +19m.21s. and +19m.33s.
Huancayo ePKP = +19m.22s., e = +20m.7s., +20m.40s., ePP = +20m.47s., e = +21m.27s., SKP = +22m.20s., i = +22m.26s., +22m.57s., S = +29m.15s., ePS = +31m.0s., SS = +38m.28s., SS = +38m.44s., eSSS = +43m.25s.
Kew ePPZ = +21m.11s., ePKS = +22m.21s., iZ = +23m.14s., iPPPZ = +36m.27s., eSSN = +38m.32s., iZ = +49m.42s.
Rathfarnham Castle e = +23m.30s., +38m.26s., and +49m.27s.

Continued on next page.

Florence i = +22m.6s.
Paris ePP = +22m.16s.
Jersey i = +22m.45s., +23m.33s., e = +41m.2s. and +54m.11s.?
La Paz iSKPN = +22m.41s., SKSP = +31m.35s., iSSN = +39m.39s., iSSS = +44m.23s., L_qN = +56·7m.
Algiers PKP_2 = +19m.48s., iSKP = +22m.55s., PP = +23m.24s., PPP = +27m.31s., ePPS? = +40m.11s.?
Toledo pPKPZ = +19m.59s., sPKPZ = +20m.16s., PPNZ = +22m.31s., PKSE = +23m.5s., PPPE = +25m.28s., P_cPPKPN = +27m.45s., PKKSE = +31m.34s., iPSN = +32m.50s., SKKKSEN = +38m.1s., SSSE = +45m.54s., PPSNZ = +55m.36s.
San Juan SKP = +22m.56s.
Almeria ePP = +23m.4s.
San Fernando e = +19m.52s., ePP = +22m.54s.
Long waves were also recorded at Oak Ridge, Cheb, Jena, Ithaca, and Bergen.

Dec. 29d. Readings also at 0h. (near Nagoya), 2h. (Nagoya), 6h. (Almeria (3), near Granada, and near Malabar), 8h. (near Mizusawa and Nagoya), 11h. (near Santiago), 14h. (Pasadena, Tinemaha, and near Mizusawa), 15h. (Tacubaya (2) and Florissant), 16h. (Florissant, Upsala, Theodosia (2), Simferopol (2), and Yalta (2)), 17h. (Pasadena), 19h. (Theodosia, Simferopol, Yalta, and near Ferndale), 20h. (Almeria and near Granada), 21h. (Andijan, Frunse, and Samarkand), 22h. (Christchurch, Andijan, Frunse, Tashkent (2), and Sverdlovsk).

Dec. 30d. 4h. 9m. 12s. Epicentre 30°·5N. 131°·6E. (as on 1934 Sept. 13d.). X.

A = −·5721, B = +·6443, C = +·5075; δ = −2;
D = +·748, E = +·664; G = −·337, H = +·380, K = −·862.

		Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	m. s.	s.	m. s.	s.	m.	m.
Hukuoka		3·2	342	e 0 45	− 1	e 1 41	S_g	—	—
Hukuoka B		3·2	342	e 0 47	+ 1	1 40	S_g	—	—
Sumoto		4·7	36	e 0 59	− 8	—	—	—	—
Husan		5·1	335	e 1 15	+ 2	2 29	S*	—	—
Kobe		5·1	36	e 1 14	+ 1	—	—	—	—
Toyooka	N.	5·7	27	1 18	− 3	—	—	—	—
Nagoya		6·5	44	e 1 46	P*	—	—	—	—
Keizyo		8·1	332	e 3 6	+71	e 6 7	?	—	—
Zinsen		8·1	330	e 1 54	− 1	e 4 30	S_g	—	—
Zi-ka-wei	Z.	8·8	277	e 2 4	− 1	4 38	S_g	5·5	8·0
Nanking		11·1	282	e 2 37	+ 1	e 6 5	S_g	—	8·8
Mizusawa		11·6	40	(e 2 48)	+ 5	e 2 48	P	—	—
Vladivostok		12·6	1	e 3 5	+ 9	e 5 49	+32	7·4	10·5
Chiufeng		15·8	312	e 3 40	+ 1	6 49	+15	—	12·6
Hong Kong		17·6	247	3 57	− 5	7 40	+25	—	13·9
Manila		18·7	214	4 10	− 5	7 54	+14	—	—
Calcutta	N.	39·3	269	—	—	e 14 8	+42	—	23·9
Tashkent		50·5	301	—	—	e 18 48?	ScS	e 27·8	33·5
Sverdlovsk		54·6	321	—	—	17 23	+19	25·8	31·9
Ksara		77·8	301	e 11 56	− 1	e 22 12	+20	46·8	53·8

Additional readings:—
Sumoto ePZ = +1m.2s., eZ = +4m.3s., eE = +4m.7s., eN = +4m.16s.
Toyooka ePE = +1m.37s.
Chiufeng i = +4m.5s.
Tashkent e = +24m.24s.
Long waves were also recorded at De Bilt, Tiflis, Pulkovo, Moscow, Copenhagen, Strasbourg, Paris, and Stuttgart.

Dec. 30d. Readings also at 3h. (near Tucson), 4h. (Phu-Lien), 8h. (Manila), 10h. (near Kobe), 17h. (Hamburg), 20h. (Santiago), 21h. (near Samarkand).

Dec. 31d. Readings at 0h. and 2h. (near Nagoya), 14h. (Balboa Heights), 16h. (Balboa Heights, Ksara, Christchurch, near Tuai, and Wellington), 17h. (Jersey), 22h. (Wellington).

CORRIGENDUM TO 1936 FEB. 16d.14h.18m.0s.

The epicentre 21°·5S. 169°·0E. adopted for this earthquake on Page 68 of this volume of the I.S.S. now appears to have been wrong. The revised determination printed below greatly improves the agreement with readings from several of the more distant observers, but disregards those of Wellington. In the determination originally made Wellington was regarded as a key station, and the remaining data were subordinated to it.

1936 February 16d. 14h. 17m. 1s. Epicentre 24°·0S. 173°·0E.

$A = -\cdot 9067$, $B = +\cdot 1113$, $C = -\cdot 4067$; $\delta = -10$;
$D = +\cdot 122$, $E = +\cdot 993$; $G = +\cdot 404$, $H = -\cdot 050$, $K = -\cdot 914$.

A *depth* of focus 0·020 has been assumed.

		Corr. for Focus	Δ	Az.	P.	O−C.	S.	O−C.	L.	M.
		°	°	°	m. s.	s.	m. s.	s.	m.	m.
New Plymouth		−0·5	15·1	177	4 59	?	—	—	—	—
Wellington		−0·7	17·4	177	4 49	+59	7 39	+44	—	—
Sydney		−0·9	21·4	237	e 3 59?	−36	—	—	9·0	11·5
Riverview		−0·9	21·5	237	i 4 39a	+ 3	i 8 34	+16	—	12·6
Melbourne		−1·3	27·6	233	i 5 41	+ 9	i 10 21	+18	15·5	17·6
Adelaide		−1·4	31·7	241	e 6 9	+ 1	i 11 6	− 3	12·8	15·9
Amboina		−2·0	47·7	288	6 43	?	—	—	—	—
Perth		−2·1	50·5	247	14 59	S	(14 59)	−41	22·8	—
Manila		−2·5	63·8	302	9 41	−33	16 41	?	—	17·0
Batavia		−2·5	65·7	275	10 6	−21	e 13 44	?	—	—
Hong Kong		−2·6	73·6	304	11 20	+ 3	19 28	−65	—	29·2
Nanking		−2·6	76·3	315	11 31	− 2	19 55	?	—	—
Vladivostok		−2·6	77·0	331	i 11 38	+ 1	i 14 10	?	—	—
Chiufeng		−2·7	83·1	320	i 12 13k	+ 3	i 21 16	−64	—	—
Pasadena		−2·7	87·4	51	i 12 31	− 1	—	—	—	—
Mount Wilson	z.	−2·8	87·6	51	i 12 31a	− 1	—	—	—	—
Riverside		−2·8	87·9	51	i 12 33a	− 1	—	—	—	—
Haiwee		−2·8	88·6	49	e 12 37	0	—	—	—	—
Tinemaha		−2·8	88·9	49	e 12 38	− 1	—	—	—	—
Tucson		−2·8	91·9	56	(e 12 55)	+ 2	—	—	e 12·9	—
Calcutta	E.	−2·8	94·4	293	13 18	+13	22 56	[−62]	—	—
Huancayo		—	104·2	111	e 18 49	PP	—	—	e 52·2	—
Agra	E.	—	104·8	294	e 18 6	PP	i 23 48	?	—	—
Bombay		—	106·5	284	e 13 59?	−15	—	—	—	—
La Paz		—	107·9	119	e 19 19	PP	i 30 24	?	—	—
Tashkent		—	115·5	306	—	—	e 29 11	SKSP	—	51·3
Sverdlovsk		—	122·1	324	18 10	[−40]	26 11	[+14]	46·0	—
Tiflis		—	133·8	306	e 21 31	PP	—	—	—	—
Pulkovo		—	135·8	334	19 49	[+33]	29 39	{+41}	57·0	—
Ksara		—	141·5	295	e 19 7	[−16]	26 17	[+13]	—	—
Helwan		—	145·5	289	e 17 26	+ 3	e 22 41	?	—	—
De Bilt		—	150·4	345	e 19 23	[−19]	—	—	e 75·0	—
Zagreb		—	151·4	326	e 19 21	[−23]	—	—	—	—
Uccle		—	151·8	346	e 19 27	[−17]	—	—	e 42·0	—
Kew		—	152·1	351	e 18 59?	[−45]	—	—	—	—
Stuttgart		—	152·1	337	e 19 24a	[−20]	—	—	—	—
Triest		—	152·6	328	e 19 25	[−20]	—	—	—	—
Strasbourg		—	152·8	339	i 19 25	[−21]	—	—	e 41·0	—
Zurich		—	153·5	337	e 19 27	—	—	—	—	—
Chur		—	153·6	336	e 19 28	[−19]	—	—	—	—
Paris		—	154·1	346	e 19 31	[−16]	—	—	43·0	—

For Notes see next page.

NOTES TO FEBRUARY 16d. 14h. 17m. 1s.

Additional readings :—

Riverview iPEN = +4m.42s., iEN = +5m.24s., iE = +5m.50s., iN = +8m.30s., iE = +8m.40s.
Wellington i = +5m.39s., pP? = +6m.19s., i = +8m.45s., P_cP = +9m.10s., sS? = +9m.59s., S_cP = +11m.34s., P_cS = +12m.2s., S_cS = +15m.44s.
Melbourne i = +6m.29s.
Adelaide i = +7m.16s.
Perth S = +19m.59s.
Batavia PZ = +10m.36s.
Nanking ePP = +14m.6s., iSE = +20m.44s.
Chiufeng pPNZ = +12m.32s., SSE = +21m.44s., S_cSNZ = +22m.0s., iN = +22m.23s.
Pasadena iZ = +13m.12s., eE = +24m.7s.
Mount Wilson iZ = +13m.12s.
Riverside eZ = +13m.15s.
Calcutta PS = +23m.29s.
Huancayo e = +20m.14s., eSP = +27m.39s., eSS = +33m.59s.
Tashkent i = +34m.1s.
Tiflis e = +22m.45s., +27m.43s., +37m.44s., and +40m.50s.
Ksara ipPKP = +19m.46s., ipP = +22m.27s., i = +23m.36s., SKKS = +28m.19s., PPS = +34m.55s., SS = +40m.36s.
Zagreb eZ = +20m.1s.
Stuttgart i = +20m.5s., eZ = +23m.29s.
Triest e = +20m.6s.
Strasbourg i = +20m.7s. and +20m.29s.
Paris i = +20m.12s.
Long waves were also recorded at Baku, Ivigtut, and Scoresby Sund.

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